

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SNF
Edition : 05.05.94
replaces : 07.84
Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R172
Type number : 0 460 416 032
Customer Part-No. :

Customer-specific information
Customer : SNF

Engine : WD 611.87

Power KW: 81

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 800
Setting value mm: 3.50...3.90

Supply-pump pressure

Speed 1/min: 800
Charge press hPa: 800
Setting value bar: 5.40...6.00

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 800
Del. quantity cm³/
1000S.: 70.00...71.00
Dispersion cm³/: 3.5
1000S.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 53.50...54.50

Low-idle speed regulation

Speed 1/min: 250
Del. quantity cm³/
1000S.: 16.00...20.00
Del. quantity cm³/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1200
Charge press hPa: 800
Del. quantity cm³/
1000S.: 38.00...42.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 65.00...125.00
mind 1000S.: 65.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1130
Charge press hPa: 800
TD travel mm: 6.80...7.60
mm: (6.50...7.90)

3rd speed 1/min: 800
Charge press hPa: 800
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

4th speed 1/min: 600
Charge press hPa: 800
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Supply-pump pressure characteristic:

1st speed 1/min: 1130
Charge press. hPa: 800
Supply-pump
pressure bar: 6.80...7.40
2nd speed 1/min: 800
Charge press. hPa: 800
Supply-pump
pressure bar: 5.40...6.00
3rd speed 1/min: 600
Charge press. hPa: 800
Supply-pump
pressure bar: 4.40...5.00

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1130
Charge press. hPa: 800
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 500
Charge-air pressure-setting
point hPa: 150
LDA-stroke mm: 4.0
Del. quantity cm³/: 61.50...62.50
1000S.: (59.00...65.00)
2nd speed 1/min: 1310
Charge press. hPa: 800
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1250
Charge press. hPa: 800
Del. quantity cm³/: 10.00...26.00
1000S.: (10.00...26.00)
5th speed 1/min: 1200
Charge press. hPa: 800
Del. quantity cm³/: 38.00...42.00
1000S.: (34.00...46.00)
9th speed 1/min: 1130
Charge press. hPa: 800
Del. quantity cm³/: 72.00...76.00
1000S.: (71.00...77.00)
12th speed 1/min: 800
Charge press. hPa: 800
Del. quantity cm³/: 70.00...71.00
1000S.: (68.00...73.00)
18th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 53.50...54.50
1000S.: (51.50...56.50)

Mech. shutoff:
Mech. Abst. ellung:

1st speed 1/min: 1130
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 250
Del. quantity cm³/: 16.00...20.00
1000S.: (14.00...22.00)
Dispersion cm³/: 3.5
1000S.: (3.5)
2nd speed 1/min: 380
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 330
Del. quantity cm³/: 2.00...10.00
1000S.: (2.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 170
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)
2nd speed 1/min: 250
Del. quantity cm³/: 26.00...50.00
1000S.: (26.00...50.00)
4th speed 1/min: 100
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.5
MS mm: 1.3...1.5
SVS max. mm: 4.0
LDA stroke mm: 4.0
Ya mm: 37.2...39.2
Yb mm: 48.2...56.2

Remarks:

:
:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/11F1125R546
Type number : 0 460 416 075
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT "DI"

Engine : 8065.25.230

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.10...1.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Charge press hPa: 1000
Setting value bar: 6.60...7.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 650
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 78.50...79.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 48.00...49.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 7.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.0
1000S.: (6.0)

Full-load speed regulation

Speed 1/min: 1170
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 27.00...33.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 80.00...140.00
mind 1000S.: 80.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 2.00...2.80
mm: (1.50...3.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.10...1.50
mm: (0.40...2.20)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.40...4.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.60...7.20

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 575

Charge-air pressure-setting
point hPa: 360
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.50...58.50
1000S.: (53.00...63.00)

2nd speed 1/min: 1280
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1170
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...33.00
1000S.: (24.00...36.00)

8th speed 1/min: 1125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...64.00
1000S.: (46.00...66.00)

9th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.50...68.50
1000S.: (63.50...70.50)

12th speed 1/min: 650
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 78.50...79.50
1000S.: (75.50...82.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...49.00
1000S.: (45.00...52.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 81.00...85.00
1000S.: (79.50...86.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1050
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (4.00...14.00)

Dispersion cm³/: 6.0
1000S.: (6.0)

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: MIND.95
1000S.: -

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...140.00
1000S.: (80.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.4
MS mm: 2.0...2.4
Ya mm: 34.9...36.9
Yb mm: 38.3...43.5

Remarks:

:

:

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R583
Type number : 0 460 416 077
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : D706 LT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1200
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

A06

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1200
Setting value bar: 7.10...7.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1200
Del. quantity cm³/
1000S.: 76.00...77.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.5
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 55.50...56.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1200
Del. quantity cm³/
1000S.: 48.00...52.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: -

Inj.-qty. cm³/
difference 1000S.: -15.0..-21.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200
Charge press hPa: -
TD-travel
difference mm: -0.9...-1.1 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1200
TD travel mm: 2.70...3.50
mm: (2.20...4.00)
electromagnet Volt: 12
2nd speed 1/min: 1200
Charge press hPa: 1200
TD travel mm: 2.40...2.80
mm: (1.90...3.30)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 1.30...2.10
mm: (0.80...2.60)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4.70...5.30
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1200
Charge press. hPa: 1200
Supply-pump
pressure bar: 7.10...7.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1300
Charge press. hPa: 1200
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

A07

Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Overflow : 102.70...147.20
quantity cm³/10s: (87.70...162.20)
2nd speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Overflow : 97.20...180.50
quantity cm³/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1st speed 1/min: 660
Charge-air pressure-setting
point hPa: 550
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...76.00
1000S.: (72.50...78.50)
2nd speed 1/min: 1780
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 1600
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...38.00
1000S.: (20.00...40.00)
4th speed 1/min: 1500
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...52.00
1000S.: (44.00...56.00)
5th speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 74.00...78.00
1000S.: (72.50...79.50)
6th speed 1/min: 1000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...77.00
1000S.: (73.50...79.50)
7th speed 1/min: 800
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.50...83.50
1000S.: (75.00...85.00)
8th speed 1/min: 600

Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 86.00...90.00
1000S.: (84.50...91.50)

9th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.00...59.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (4.00...14.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Charge press. hPa: -
Inj.-qty. cm³/ : -11.0.-13.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1200
Charge press. hPa: -
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 500

A08

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...70.00
1000S.: (30.00...70.00)

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...80.00
1000S.: (40.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS1	mm: 1.0...1.3
Ya	mm: 38.6...40.6
Yb	mm: 60.5...71.5

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R586
Type number : 0 460 416 078
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8065.05.240

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 6.20...6.80
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 63.50...64.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.5
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 22.00...28.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...130.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 800
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1150

TD travel mm: 2.90...3.70
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 4.70...5.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 800

Supply-pump
pressure bar: 6.20...6.80
Shutoff

electromagnet Volt: 12
4th speed 1/min: 1150

Supply-pump
pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 1150
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...28.00
1000S.: (19.00...31.00)

9th speed 1/min: 1150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...59.50
1000S.: (54.50...61.50)

12th speed 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 64.50...65.50
1000S.: (61.00...67.00)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 61.00...64.00
1000S.: (59.00...66.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1150
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

Dispersion cm³/: 3.5
1000S.: (4.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...135.00
1000S.: (75.00...135.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.4
MS	mm: 1.1...1.3
Ya	mm: 36.5...38.5
Yb	mm: 43.7...48.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE3/12F1125R531
Type number : 0 460 423 001
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : 3.152 R49

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0,3
(from BDC): +0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Setting value mm: 0.80...1.20

Supply-pump pressure

Speed 1/min: 950
Setting value bar: 6.30...6.90

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 65.50...66.50
Dispersion cm³/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 13.00...17.00
Del. quantity cm³/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 17.00...23.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...120.00
mind 1000S.: 60.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1125
TD travel mm: 1.30...2.10
mm: (1.00...2.40)
3rd speed 1/min: 900
TD travel mm: 0.10...0.90
mm: (0.00...1.20)
4th speed 1/min: 950
TD travel mm: 0.80...1.20
mm: (0.30...1.70)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 4.00...4.60
2nd speed 1/min: 950
Supply-pump
pressure bar: 6.30...6.90
3rd speed 1/min: 1125
Supply-pump
pressure bar: 7.10...7.70

Overflow quantity at overflow valve:

1st speed 1/min: 700
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1125
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: -
2nd speed 1/min: 1250
Del. quantity cm³/: 17.00...23.00
1000S.: (12.00...28.00)
3rd speed 1/min: 1220
Del. quantity cm³/: 45.00...65.00
1000S.: -
4th speed 1/min: 1125
Del. quantity cm³/: 58.00...62.00
1000S.: (56.50...63.50)
5th speed 1/min: 700
Del. quantity cm³/: 65.50...66.50
1000S.: (63.00...69.00)
6th speed 1/min: 500
Del. quantity cm³/: 64.50...68.50
1000S.: (63.00...70.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1125
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 13.0...17.0
1000S.: (11.0...19.0)
Dispersion cm³/: 3.0
1000S.: (3.0)
2nd speed 1/min: 325
Del. quantity cm³/: 6.00...14.0
1000S.: (5.00...15.0)
3rd speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 180
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

2nd speed 1/min: 280
Del. quantity cm³/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: KOT
MS mm: 0.7...0.9
XK mm: 37.2...39.2
XL mm: 52.1...60.1

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE3/12F1125R532
Type number : 0 460 423 002
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : TD 226-B3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 1.60...2.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 6.70...7.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 85.50...86.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 21.00...27.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1170
Del. quantity cm3/
1000S.: 52.00...58.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
1000S.: 109.0...111.0
mind 1000S.: 102.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700

TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 550
Supply-pump
pressure bar: 5.60...6.20
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 800
Supply-pump
pressure bar: 6.70...7.30
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Supply-pump
pressure bar: 7.80...8.40
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 550
Shutoff
electromagnet Volt: 12
Overflow : 102.7...147.2
quantity cm³/10s: (87.70...162.2)
2nd speed 1/min: 1100
Shutoff
electromagnet Volt: 12
Overflow : 97.20...180.50
quantity cm³/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1280
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
2nd speed 1/min: 1240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...15.0
1000S.: -
3rd speed 1/min: 1190
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: -
4th speed 1/min: 1170
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.00...58.00
1000S.: (46.50...63.50)
5th speed 1/min: 1100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 79.50...82.50
1000S.: (78.00...84.00)

6th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 81.50...84.50
1000S.: (80.00...86.00)

7th speed 1/min: 900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.5...86.5
1000S.: (83.5...88.5)

8th speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.0...91.0
1000S.: (84.0...92.0)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1100
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.0...3.0
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/: 21.0...27.0
1000S.: (17.5...30.5)
Dispersion cm³/: 3.5
1000S.: (6.5)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 120.0...160.00
1000S.: (120.0...160.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...135.0
1000S.: (85.00...135.0)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 109.0...111.0
1000S.: (109.0...111.0)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: KOT
MS1	mm: 1.0...1.3
XK	mm: 41.4...45.4
XL	mm: 37.0...43.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 D1
Edition : 28.04.94
replaces : 16.07.91
Calibrating oil : ISO-4113
Injection pump : VE4/12F1050R230-3
Type number : 0 460 424 033
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 4 BTA-390 IND

Power KW: 79
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder assembly : 1 688 901 027

Opening Pressure bar: 250.00...253.00

Perforated-plate diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery Prestroke mm: 0,3
(from BDC): +0,02(0,04)

Start of delivery block Piston stroke mm: 1.55
mm: +0.04(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm3/1000S.: 83.00...84.00
Shutoff electromagnet Volt: 12
Dispersion cm3/1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/1000S.: 63.50...64.50
Shutoff electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/1000S.: 8.00...14.00
Shutoff electromagnet Volt: 12
Del. quantity cm3/1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1100
Charge press hPa: 1000
Del. quantity cm3/1000S.: 59.00...65.00
Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/1000S.: 60.00...120.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 4.70...5.50
mm: (4.40...5.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
TD travel mm: 0.00...6.40
mm: (0.00...1.00)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1050
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 350
LDA-stroke mm: 6,8
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 79.50...80.50
(76.00...84.00)

2nd speed 1/min: 1120
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 20.00...50.00
(20.00...50.00)

4th speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 59.00...65.00
(56.00...68.00)

9th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 76.50...79.50
(75.00...81.00)

12th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 83.00...84.00
(80.50...86.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 63.50...64.50
(60.00...68.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1050
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...50.00
1000S.: (10.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5,1...5,4
MS mm: 1,1...1,35
SVS max. mm: 2,2
LDA stroke mm: 6.8

XK mm: 20.2...22.2
XL mm: 11.9...15.3

Remarks:

: C.D.C. # 3 909 593
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 05.05.94
replaces : 15.06.92
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280
Type number : 0 460 424 037

Customer-specific information
Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000
Setting value bar: 4.60...5.20

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 93.00...94.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 84.50...85.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 22.00...26.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1430
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 95.00...145.00
mind 1000S.: 95.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 2.00...2.80
mm: (1.70...3.10)

electromagnet Volt: 12
2nd speed 1/min: 950

Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.00...6.60

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 950
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.60...5.20

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump
pressure bar: 2.70...3.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.50...139.00
(40.50...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 89.00...90.00
(86.50...92.50)

2nd speed 1/min: 1560
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 14.00...22.00
(11.00...25.00)

4th speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 87.70...91.30
(86.50...92.50)

6th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 93.00...94.00
(90.50...96.50)

7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 84.50...85.50
(82.00...88.00)

8th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 92.00...96.00
(91.00...97.00)

9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 75.50...79.50
(74.50...80.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300

Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...26.00
1000s.: (19.00...29.00)

Dispersion cm³/: 5.0
1000s.: (5.0)

2nd speed 1/min: 350

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...15.00
1000s.: (7.00...17.00)

3rd speed 1/min: 400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.60
1000s.: (0.00...2.60)

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.00...145.00
1000s.: (95.00...145.00)

2nd speed 1/min: 250

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.00...72.00
1000s.: (62.00...72.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.00...145.00
1000s.: (95.00...145.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: K-OT
MS mm: 1.1...1.5
LDA stroke mm: 7.0
Ya mm: 37.2...39.2
Yb mm: 47.2...55.6

Remarks:

:
:
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280
Type number : 0 460 424 037
Customer Part-No. : 2 643 H05 5

Customer-specific information
Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000

A23

Setting value bar: 4.60...5.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 93.00...94.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 84.50...85.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 22.00...26.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1530
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 95.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 2.00...2.80
mm: (1.70...3.10)
electromagnet Volt: 12

2nd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: 1.30...2.70

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: 0.30...1.70

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Charge press. nPa: 1000
Supply-pump pressure bar: 6.00...6.60
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 950
Charge press. hPa: 1000
Supply-pump pressure bar: 4.60...5.20
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump pressure bar: 2.70...3.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.50...139.00
(40.50...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 89.00...90.00
(86.50...92.50)

2nd speed 1/min: 1660

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 11.00...19.00
(8.00...22.00)

4th speed 1/min: 1530
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 87.70...91.30
(86.50...92.50)

6th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 93.00...94.00
(90.50...96.50)

7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 84.50...85.50
(82.00...88.00)

8th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 92.00...96.00
(91.00...97.00)

9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 75.50...79.50
(74.50...80.50)

Mech. shutoff: Mech. Abst.ellung:

1st speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...26.00
1000S.: (19.00...29.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...15.00
1000S.: (7.00...17.00)

3rd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.60
1000S.: (0.00...2.60)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.00...145.00
1000S.: (95.00...145.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.00...72.00
1000S.: (62.00...72.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.00...145.00
1000S.: (95.00...145.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: K-OT
MS mm: 1.1...1.5
LDA stroke mm: 7.0
Ya mm: 37.2...39.2

A25

Yb mm: 47.2...55.6

Remarks:

: REGELFEDER
: 1 464 650 366

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280
Type number : 0 460 424 037
Customer Part-No. : 2 643 H06 7

Customer-specific information
Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000

A26

Setting value bar: 4.60...5.20
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 93.00...94.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 84.50...85.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 22.00...26.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1430
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 95.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 2.00...2.80
mm: (1.70...3.10)

electromagnet Volt: 24

2nd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 6.00...6.60

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 950
Charge press. hPa: 1000
Supply-pump pressure bar: 4.60...5.20

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 500
Supply-pump pressure bar: 2.70...3.30
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.50...139.00
(40.50...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 89.00...90.00
(86.50...92.50)
2nd speed 1/min: 1560

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 11.00...19.00
(8.00...22.00)

4th speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 87.70...91.30
(86.50...92.50)

6th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 93.00...94.00
(90.50...96.50)

7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 84.50...85.50
(82.00...88.00)

8th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 92.00...96.00
(91.00...97.00)

9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 75.50...79.50
(74.50...80.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 22.00...26.00
1000S.: (19.00...29.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 9.00...15.00
1000S.: (7.00...17.00)

3rd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...2.60
1000S.: (0.00...2.60)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 95.00...145.00
1000S.: (95.00...145.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 62.00...72.00
1000S.: (62.00...72.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 95.00...145.00
1000S.: (95.00...145.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: K-OT
MS mm: 1.1...1.5
LDA stroke mm: 7.0
Ya mm: 37.2...39.2

Yb mm: 47.2...55.6

Remarks:

:
:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P43
Edition : 22.04.94
replaces : 14.04.92
Calibrating oil : ISO-4113
Injection pump : VE4/12F1100R378-7
Type number : 0 460 424 074
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 4 BT-390 580K

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 1.8
mm: +0.04(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.10...4.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 63.50...64.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 500
Del. quantity cm3/
1000S.: 6.00...12.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1170
Del. quantity cm3/
1000S.: 31.50...38.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 3.10...3.90
mm: (2.80...4.20)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900

TD travel mm: 2.30...2.70
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 12

7.Rotacao 1/min: 650

TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 900

Supply-pump pressure bar: 4.10...4.70

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100

Supply-pump pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 41.70...86.10
(26.70...101.10)

2nd speed 1/min: 1100

Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1260

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1190

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 10.00...40.00
1000S.: (10.00...40.00)

5th speed 1/min: 1170

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 31.50...38.50
1000S.: (29.00...41.00)

9th speed 1/min: 1100

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 60.50...63.50
1000S.: (59.00...65.00)

10th speed 1/min: 900

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 60.80...63.80
1000S.: (58.80...65.80)

12th speed 1/min: 750

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 63.50...64.50
1000S.: (61.00...67.00)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 58.00...66.00
1000S.: (56.00...68.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1100

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 500

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 570

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...70.00
1000s.: (30.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...120.00
1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.2...1.4
SVS max.	mm: 2.5
Ya	mm: 34.8...38.8
Yb	mm: 40.2...45.6

Remarks:

: C.D.C. # 3 917 528

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 05.05.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R374-4
Type number : 0 460 424 089

Customer-specific information
Customer : CDC

Engine : 4 BTA 3.9

Power KW: 81
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 250...253

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.55
mm: $\pm 0.04(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 85.5...86.5
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 63.50...64.50
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1145
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 65.00...71.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 65.00...105.00
mind 1000S.: 65.0

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 5.20...6.00
mm: (4.90...6.30)

Shutoff : 24
2nd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 6.70...7.30

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 5.10...5.70

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 4.00...4.60

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 97.20...138.80
cm³/10s: (82.20...153.80)

2nd speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Overflow : 111.10...194.40
quantity cm³/10s: (96.10...209.40)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 350
LDA-stroke mm: 6.6
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 81.50...82.50
cm³/1000S.: (78.00...86.00)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
cm³/1000S.: -

3rd speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 15.00...55.00
cm³/1000S.: -

4th speed 1/min: 1145
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 65.00...71.00
cm³/1000S.: (62.00...74.00)

5th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 76.00...79.00
cm³/1000S.: (74.50...80.50)

6th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 78.50...81.50
cm³/1000S.: (76.50...83.50)

7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 85.50...86.50
cm³/1000S.: (83.00...89.00)

8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 63.50...64.50
cm³/1000S.: (60.00...68.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1100
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm³/: 3.5
1000S.: (5.0)
2nd speed 1/min: 455
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

2nd speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...125.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...105.00
1000S.: (65.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

B06

K mm: -
KF mm: 5.0...5.4
MS mm: 1.0...1.2
LDA stroke mm: 6.6
Ya mm: 34.8...38.8
Yb mm: 40.8...46.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MMM
Edition : 28.04.94
replaces : 16.06.92
Calibrating oil : ISO-4113
Injection pump : VE4/12F150GR492
Type number : 0 460 424 091

Customer-specific information
Customer : MMM

Engine : D 229 EC 4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207...210

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 5.10...5.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 6.70...7.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1100
Del. quantity cm³/
1000S.: 59.70...60.70
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1600
Del. quantity cm³/
1000S.: 42.00...48.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 90.00...130.00
mind 1000S.: 90.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1500
TD travel mm: 6.20...7.00
mm: (5.90...7.30)
Shutoff : 12
2nd speed 1/min: 1100
TD travel mm: 5.10...5.50
mm: (4.60...6.00)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 700
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
Supply-pump pressure characteristic:

1st speed 1/min: 1500
Supply-pump pressure bar: 8.20...8.80
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1100
Supply-pump pressure bar: 6.70...7.30
Shutoff electromagnet Volt: 12
3rd speed 1/min: 700
Supply-pump pressure bar: 4.90...5.50
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 97.20...138.80 (82.20...153.80)
2nd speed 1/min: 1500
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 111.10...194.40 (96.10...209.40)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1850
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
3rd speed 1/min: 1700
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 14.00...28.00 (11.00...31.00)
4th speed 1/min: 1600
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 42.00...48.00 (39.00...51.00)
5th speed 1/min: 1500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 53.00...57.00 (51.50...58.50)
6th speed 1/min: 1100
Shutoff electromagnet Volt: 12

Del. quantity cm³/1000s.: 59.70...60.70 (57.20...63.20)
7th speed 1/min: 900
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 61.50...65.20 (60.00...67.00)
8th speed 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 54.00...60.00 (52.00...62.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/1000s.: 0.00...3.00
Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 13.00...17.00 (11.00...19.00)
Dispersion cm³/1000s.: 3.5 (5.0)
2nd speed 1/min: 300
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 28.50...36.50 (26.50...38.50)
3rd speed 1/min: 450
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...6.00 (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 20.00...60.00 (20.00...60.00)
4th speed 1/min: 100
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 90.00...130.00 (90.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS1	mm: 1.2...1.4
Ya	mm: 42.0...44.0
Yb	mm: 36.8...45.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 29.04.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1350R505
Type number : 0 460 424 094
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT "DI"

Engine : 8040.45.4300

Power Kw: 75
Speed 1/min: 1350

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000

B10

Setting value mm: 3.90...4.10
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 7.20...7.80
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 73.50...74.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 48.00...49.00
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 6.00...10.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1550
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 19.00...25.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 3.90...4.10
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 1.40...2.00
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24
7.Rotacao 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 2.70...3.30
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.60...9.20
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.3
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (63.00...71.00)

2nd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (0.00...3.00)

5th speed 1/min: 1550
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (16.00...28.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (65.00...72.00)

10th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (67.50...74.50)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (70.50...77.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/:
1000S.: (45.00...52.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1350
Del. quantity cm³/:
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/:
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...10.00
1000S.: (3.00...13.00)

Dispersion cm³/: 3.5
1000S.: (5.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.4...3.8
KF mm: KOT
MS1 mm: 1.1...1.4
LDA stroke mm: 5.3
Ya mm: 36.9...40.9
Yb mm: 37.8...43.0

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 29.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R511
Type number : 0 460 424 095
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT "DI"

Engine : 8040.45.4383

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.90...3.10
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.60...7.20
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 75.50...76.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 55.50...56.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 4.00...8.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 30.00...34.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 4.60...5.20
 mm: (4.20...5.60)
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 4.20...4.80
 mm: (3.80...5.20)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.90...3.10
 mm: (2.30...3.70)
 Shutoff
 electromagnet Volt: 24
 5th speed 1/min: 800
 Charge press. hPa: 1000
 TD travel mm: 0.10...0.70
 mm: (0.00...1.10)

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.60...7.20
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump pressure bar: 8.60...9.20
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 75.00...119.50
 (60.00...134.50)
 2nd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 97.30...180.70
 (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
 Charge-air pressure-setting point hPa: 450
 LDA-stroke mm: 4.5
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.50...56.50
 1000S.: (52.50...59.50)
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 5th speed 1/min: 1450
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 30.00...34.00
 1000S.: (26.00...38.00)
 9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 66.50...70.50
 1000S.: (65.00...72.00)
 10th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 71.00...75.00
 1000S.: (69.50...76.50)
 12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.50...76.50
 1000S.: (72.50...79.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.50...56.50
 1000S.: (52.50...59.50)

Mech. shutoff:
Mech. Abstimmung:

1st speed 1/min: 1350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 4.00...8.00
1000S.: (1.00...11.00)

Dispersion: cm³/: 3.5
1000S.: (5.0)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.5...3.6
KF mm: KOT
MS1 mm: 1.1...1.4
LDA stroke mm: 4.5
Ya mm: 36.9...40.9
Yb mm: 42.4...47.6

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 29.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R516
Type number : 0 460 424 096
Customer Part-No. :

Customer-specific information
Customer : MAXON

Engine : S4T - PLUS

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 101

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 1.90...2.10

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.20...6.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del. quantity cm³/
1000S.: 97.00...98.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 67.00...71.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 5.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1200
Del. quantity cm³/
1000S.: 75.50...81.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 105.00...155.00
mind 1000S.: 105
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
 Charge press hPa: 1200
 TD travel mm: 2.10...2.90
 mm: (1.80...3.20)
 3rd speed 1/min: 1100
 Charge press hPa: 1200
 TD travel mm: 1.70...2.10
 mm: (1.20...2.60)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 900
 Charge press. hPa: 1200
 Supply-pump pressure bar: 5.40...6.00
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1100
 Charge press. hPa: 1200
 Supply-pump pressure bar: 6.20...6.80
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1400
 Charge press. hPa: 1200
 Supply-pump pressure bar: 7.40...8.00
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 97.20...138.80
 (82.20...153.80)
 2nd speed 1/min: 1400
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 111.10...194.40
 (96.10...219.40)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750

Charge-air pressure-setting point

hPa: 600
 LDA-stroke mm: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 67.00...71.00
 1000S.: (64.50...73.50)
 2nd speed 1/min: 1800
 Charge press. hPa: 1200
 Shutoff

electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1600
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.00...41.00
 1000S.: (21.00...45.00)

9th speed 1/min: 1500
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 75.50...81.50
 1000S.: (72.50...84.50)

10th speed 1/min: 1400
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 93.50...97.50
 1000S.: (92.00...99.00)

12th speed 1/min: 1100
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 97.00...98.00
 1000S.: (94.50...100.50)

13th speed 1/min: 700
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 104.0...110.0
 1000S.: (102.0...112.0)

14th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 67.00...71.00
 1000S.: (64.50...73.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...9.00
1000S.: (3.00...11.00)
Dispersion cm³/: 3.5
1000S.: (5.0)
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.0...24.0
1000S.: (14.0...26.0)
3rd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...80.00
1000S.: (30.00...80.00)
4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 105.00...155.00
1000S.: (105.00...155.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.0...1.2
Ya mm: 35.0...37.0
Yb mm: 44.8...53.2

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,8 W38
Edition : 28.04.94
replaces : 24.04.90
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R320-2
Type number : 0 460 426 139
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BT-590A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.40
mm: +/-0.04(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 1.30...1.70
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure
Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.80...7.40
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 73.00...74.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 51.00...52.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Charge press hPa: -
Del. quantity cm3/
1000S.: 5.50...9.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1340
Charge press hPa: 1200
Del. quantity cm3/
1000S.: 52.50...58.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...130.00
mind 1000S.: 70.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press hPa: 1200
TD travel mm: 3.00...4.00
mm: -

KSB/AFB
valve Volt: -
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.30...1.70
mm: (0.80...2.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7.50...8.10
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6.80...7.40
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4.10...4.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 700
LDA-stroke mm: 6.8
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 68.00...69.00
1000S.: (64.50...72.50)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 1400

Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...55.00
 1000S.: -
 4th speed 1/min: 1340
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 52.50...58.50
 1000S.: (49.50...61.50)
 5th speed 1/min: 1250
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.50...73.50
 1000S.: (69.00...75.00)
 6th speed 1/min: 1100
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 73.00...74.00
 1000S.: (70.50...76.50)
 7th speed 1/min: 750
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 72.00...77.00
 1000S.: (70.00...79.00)
 8th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.00...52.00
 1000S.: (47.50...55.50)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 1250
 Charge press. hPa: 1200
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: 12

Electr. shutoff:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 350
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.50...9.50
 1000S.: (2.50...12.50)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 450
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...50.00
 1000S.: -

2nd speed 1/min: 130
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...130.00

4th speed 1/min: 100
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...130.00
 1000S.: -

Shutoff electromagnet:

Cut-in
 min voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 0,8...1,2
SVS max.	mm: 1.4
LDA stroke	mm: 6,8
Ya	mm: 34.8...38.8
Yb	mm: 41.6...47.2

Remarks:

: C.D.C. # 3 917 943

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 28.04.94
replaces : 07.07.92
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8
Type number : 0 460 426 200
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9 IND.

Power KW: 64
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 961 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.50
mm: $\pm 0.04(0.06)$

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.30...3.70
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.50...4.10
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
Del. quantity cm³/
1000S.: 49.50...50.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 17.00...23.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1150
Del. quantity cm³/
1000S.: 33.50...39.50

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...90.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.30...3.70
mm: (2.80...4.20)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(41.70...83.40)
2nd speed 1/min: 1100
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
3rd speed 1/min: 1160
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 15.00...45.00
(15.00...45.00)
5th speed 1/min: 1150
Shutoff
electromagnet Volt: 24

Del. quantity cm³/1000S.: 33.50...39.50
(30.50...42.50)
12th speed 1/min: 1100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 49.50...50.50
(47.00...53.00)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 47.50...50.50
(45.50...52.50)

17th speed 1/min: 600
Shutoff
electromagnet volt: 24
Del. quantity cm³/1000H.: 43.50...49.50
(42.00...51.00)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 32.50...40.50
(30.50...42.50)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1100
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 17.00...23.00
(15.00...25.00)

Dispersion cm³/1000S.: 5.5
(7.0)
2nd speed 1/min: 480
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Automatic starting fuel delivery:

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 1.0...1.4

Ya mm: 34.8...38.8

Yb mm: 42.4...47.6

Remarks:

: C.D.C. # 3 922 411

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 22.04.94
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R498-2
 Type number : 0 460 426 213
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA 5.9B

Power KW: 108
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.2
 mm: +0.04(0.06)

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.90...2.30
 AFB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 80.00...81.00
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 67.00...68.00
 KSB/AFB 11
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 11.00...15.00
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1350
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 55.00...61.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 65.00...95.00
KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 24
7. Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000

Supply-pump
pressure bar: 5.70...6.30
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000

Supply-pump
pressure bar: 7.20...7.80
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 1250
Charge press. hPa: 1000

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6.4
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.00...74.00
 1000S.: (69.50...77.50)
 2nd speed 1/min: 1480
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1425
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 10.00...40.00
 1000S.: (10.00...40.00)
 5th speed 1/min: 1350
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.00...61.00
 1000S.: (52.00...64.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 78.50...82.50
 1000S.: (77.50...83.50)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 81.50...84.50
 1000S.: (79.50...86.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 81.00...82.00
 1000S.: (78.50...84.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 67.00...68.00
 1000S.: (63.50...71.50)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 24
 KSB/AFB
 valve Volt: -

Electr. shutoff:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -

Idle delivery:

1st speed 1/min: 350
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 11.00...15.00
 1000S.: (8.00...18.00)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.00...115.00
 1000S.: (75.00...115.00)

2nd speed 1/min: 200
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 60.00...90.00
 1000S.: (60.00...90.00)

4th speed 1/min: 100

Charge press. hPa: -
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...95.00
1000S.: (65.00...95.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.1...1.4
SVS max. mm: 3.7
LDA stroke mm: 6.4
Ya mm: 34.8...38.8
Yb mm: 43.3...48.9

Remarks:
: # CDC 3 281 849

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-2
Type number : 0 460 426 213
Customer Part-No. : 3 282 594

Customer-specific information
Customer : CDC

Engine : 6 BTA 5.9B

Power KW: 108
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.20
mm: +0.04(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

CO2

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.90...2.30
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 80.00...81.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 61.50...62.50
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (6.0)

11

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 11.00...15.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1350
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 55.00...61.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 65.00...95.00
mind 1000S.: 65.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

5th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850

C03

Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

KSB/AFB
valve Volt: -
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000

Supply-pump
pressure bar: 6.30...6.90
KSB/AFB

valve Volt: -
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump

pressure bar: 7.20...7.80
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500

Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB

valve Volt: -
Shutoff
electromagnet Volt: 12

Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 1250

Charge press. hPa: 1000
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00

quantity cm³/10s: (40.60...154.00)
Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 450

LDA-stroke mm: 6.4
KSB/AFB
valve Volt: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 75.00...76.00
 1000S.: (71.50...79.50)
 2nd speed 1/min: 1480
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1425
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...40.00
 1000S.: (10.00...40.00)
 5th speed 1/min: 1350
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...61.00
 1000S.: (52.00...64.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 78.50...82.50
 1000S.: (77.50...83.50)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 81.50...84.50
 1000S.: (79.50...86.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 81.00...82.00
 1000S.: (78.50...84.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.50...62.50
 1000S.: (58.00...66.00)

Mech. shutoff:
 Mech. Abstimmung:
 1st speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: -
 Electr. shutoff:
 1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -
 Idle delivery:
 1st speed 1/min: 350
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 11.00...15.00
 1000S.: (8.00...18.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 130
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 75.00...115.00
 1000S.: (75.00...115.00)
 2nd speed 1/min: 200
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

4th speed 1/min: 100

Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 65.00...95.00
1000S.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS1 mm: 1.1...1.4

SVS max. mm: 3.7

LDA stroke mm: 6.4

Ya mm: 34.8...38.8

Yb mm: 43.3...48.9

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-2
Type number : 0 460 426 213
Customer Part-No. : 3 282 595

Customer-specific information
Customer : CDC

Engine : 6 BTA 5.9B

Power KW: 108
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.20
mm: +-0.04(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

CO6

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.90...2.30
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 80.00...81.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 61.50...62.50

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 11.00...15.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1350
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 55.00...61.00

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 65.00...95.00

KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24

5th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850

Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
4th speed 1/min: 500

Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 1250
Charge press. hPa: 1000
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6.4
KSB/AFB
valve Volt: -

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.00...76.00
 1000S.: (71.50...79.50)
 2nd speed 1/min: 1480
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1425
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 10.00...40.00
 1000S.: (10.00...40.00)
 5th speed 1/min: 1350
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.00...61.00
 1000S.: (52.00...64.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 78.50...82.50
 1000S.: (77.50...83.50)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 81.50...84.50
 1000S.: (79.50...86.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 81.00...82.00
 1000S.: (78.50...84.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 61.50...62.50
 1000S.: (58.00...66.00)

Mech. shutoff:
 Mech. Abstimmung:
 1st speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24
 KSB/AFB
 valve Volt: -
 Electr. shutoff:
 1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: -
 Idle delivery:
 1st speed 1/min: 350
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 11.00...15.00
 1000S.: (8.00...18.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 130
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.00...115.00
 1000S.: (75.00...115.00)
 2nd speed 1/min: 200
 Charge press. hPa: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 24

Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

4th speed 1/min: 100

Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 65.00...95.00

1000S.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS1 mm: 1.1...1.4

SVS max. mm: 3.7

LDA stroke mm: 6.4

Ya mm: 34.8...38.8

Yb mm: 43.3...48.9

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R579
Type number : 0 460 426 233
Customer Part-No. :

Customer-specific information
Customer : FNH-GEOTECH

Engine : 7.5 L. NA/DI

Power KW: 90
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 685 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.0
mm: +0.04(0.06)

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 600
Setting value mm: 1.00...1.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 600
Setting value bar: 5.00...5.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800
Del. quantity cm³/
1000S.: 73.50...74.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 14.50...15.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1180
Del. quantity cm³/
1000S.: 52.00...58.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 750
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 600
 TD travel mm: 1.00...1.40
 mm: (0.50...1.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1100
 TD travel mm: 2.00...2.80
 mm: (1.70...3.10)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
 Supply-pump pressure bar: 7.20...7.80
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 600
 Supply-pump pressure bar: 5.00...5.40
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 450
 Supply-pump pressure bar: 4.20...4.80
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 75.00...119.50
 (60.00...133.50)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 97.30...180.70
 (112.30...195.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1260
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 5th speed 1/min: 1180
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/1000s.: 52.00...58.00
 (47.00...63.00)
 8th speed 1/min: 1150
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 50.00...60.00
 -
 9th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 67.00...71.00
 (65.50...72.50)
 12th speed 1/min: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 73.50...74.50
 (71.00...77.00)
 18th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 64.50...65.50
 (62.00...68.00)
 20th speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 54.00...60.00
 (52.00...62.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 14.50...15.50
 (10.00...20.00)
 Dispersion cm³/1000s.: 5.0
 (5.0)
 2nd speed 1/min: 460
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 85.00...145.00
 -

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...81.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...150.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.2...1.6
Ya	mm: 32.8...34.8
Yb	mm: 41.4...48.0

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R584
Type number : 0 460 426 235
Customer Part-No. :

Customer-specific information
Customer : FNH-GEOTECH

Engine : 7.5 L TC

Power KW: 124
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.0
mm: $\pm 0.04(0.06)$

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
Charge press. hPa: 1500
Setting value mm: 1.30...1.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1500
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1500
Del. quantity cm³/
1000S.: 98.50...99.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 74.50...75.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 14.00...18.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 46.00...52.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 90.00...150.00
mind 1000S.: 90.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 800
Charge press hPa: 1500
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 700
Charge press hPa: 1500
TD travel mm: 1.30...1.70
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 600
Charge press hPa: 1500
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1150
Charge press. hPa: 1500
TD travel mm: 2.00...2.80
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1150
Charge press. hPa: 1500
Supply-pump
pressure bar: 7.60...8.20
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 700
Charge press. hPa: 1500
Supply-pump
pressure bar: 5.40...6.00
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 500
Charge press. hPa: 1500
Supply-pump
pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1500

Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)
2nd speed 1/min: 1150
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 650
Charge-air pressure-setting
point hPa: 600
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 90.00...92.00
1000S.: (88.50...94.50)

2nd speed 1/min: 1300
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1250
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 46.00...52.00
1000S.: (43.00...55.00)

4th speed 1/min: 1200
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 68.00...98.00
1000S.: -

5th speed 1/min: 1150
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 82.50...85.50
1000S.: (80.50...87.50)

6th speed 1/min: 500
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 117.00...123.00
1000S.: (115.00...125.00)

8th speed 1/min: 800
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 98.50...99.50
1000S.: (96.00...102.00)

9th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 74.50...75.50
1000S.: (71.00...79.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.00...18.00
1000S.: (11.00...21.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...95.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...150.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.2...1.6
Ya	mm: 32.8...34.8
Yb	mm: 45.0...51.0

Remarks:

C15

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1100R584-1
Type number : 0 460 426 237
Customer Part-No. :

Customer-specific information
Customer : FNH-GEOTECH

Engine : 7.5 L TC

Power kW: 105
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.0
mm: +-0.04(0.06)

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
Charge press. hPa: 1500
Setting value mm: 1.00...1.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
Charge press hPa: 1500
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1500
Del. quantity cm3/
1000S.: 84.50...85.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 60.50...61.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1180
Del. quantity cm3/
1000S.: 45.50...51.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 90.00...150.00
mind 1000S.: 90.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 800
Charge press hPa: 1500
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 700
Charge press hPa: 1500
TD travel mm: 1.00...1.40
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 600
Charge press hPa: 1500
TD travel mm: 0.20...1.00
mm: (0.00...1.30)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1100
Charge press. hPa: 1500
TD travel mm: 2.00...2.80
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
Charge press. hPa: 1500
Supply-pump pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 700
Charge press. hPa: 1500
Supply-pump pressure bar: 5.40...6.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Charge press. hPa: 1500
Supply-pump pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1500

Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)

2nd speed 1/min: 1100
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 650
Charge-air pressure-setting point hPa: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...77.00
1000S.: (73.50...79.50)

2nd speed 1/min: 1210
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1180
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...51.50
1000S.: (42.50...54.50)

4th speed 1/min: 1150
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.00...83.00
1000S.: -

5th speed 1/min: 1100
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 74.00...77.00
1000S.: (72.00...79.00)

6th speed 1/min: 500
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 99.00...105.00
1000S.: (97.00...107.00)

8th speed 1/min: 800
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 84.50...85.50
1000S.: (82.00...88.00)

9th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.50...61.50
1000S.: (58.00...64.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (7.00...17.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...72.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...150.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 1.2...1.6
Ya mm: 32.8...34.8
Yb mm: 40.7...47.3

Remarks:

Yb = Distance between VE Flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 22.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R579-1
Type number : 0 460 426 238
Customer Part-No. :

Customer-specific information
Customer : FNH-GEOTECH

Engine : 7.5 L TC

Power KW: 82
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.0
mm: ±0.04(0.06)

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 1.00...1.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 6.00...6.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1050
Del. quantity cm³/
1000S.: 64.50...65.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 14.50...15.50
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1180
Del. quantity cm³/
1000S.: 32.00...38.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 85.00...145.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 800
 TD travel mm: 1.00...1.40
 mm: (0.50...1.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 600
 TD travel mm: 0.00...0.80
 mm: (0.00...1.40)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1100
 TD travel mm: 2.00...2.80
 mm: (1.70...3.10)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
 Supply-pump pressure bar: 7.30...7.80
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 800
 Supply-pump pressure bar: 6.00...6.40
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 450
 Supply-pump pressure bar: 4.20...4.80
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 75.00...119.50
 (60.00...134.50)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 97.30...180.70
 (82.30...195.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1260
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 5th speed 1/min: 1180
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/1000S.: 32.00...38.00
 (27.00...43.00)
 8th speed 1/min: 1150
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 54.00...64.00
 -
 9th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 61.50...65.50
 (60.00...67.00)
 12th speed 1/min: 1050
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 64.50...65.50
 (62.00...68.00)
 15th speed 1/min: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 69.50...73.50
 (68.00...75.00)
 18th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 66.50...67.50
 (64.00...70.00)
 20th speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 50.00...56.00
 (48.50...57.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 14.50...15.50
 (10.00...20.00)
 Dispersion cm³/1000S.: 5.0
 (5.0)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...140.00
1000S.: -

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...145.00

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.2...1.6
Ya	mm: 32.8...34.8
Yb	mm: 41.5...48.1

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.9 H2
Edition : 29.04.94
replaces : 15.10.91
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R335
Type number : 0 460 484 023
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M704 DA 13.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Setting value mm: 5.40...5.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1600

C22

Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1600
Del. quantity cm3/
1000S.: 22.30...23.30

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 390
Del. quantity cm3/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2700
Del. quantity cm3/
1000S.: 10.00...16.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 27.00...53.00
mind 1000S.: 27.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -7.00...-13.00
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
TD-travel
difference mm: -0.90...-1.10
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2500
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1600
TD travel mm: 5.40...5.80
mm: (4.90...6.30)

Shutoff
electromagnet Volt: 12

4th speed 1/min: 800
TD travel mm: 1.60...2.70
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

5th speed 1/min: 2000
TD travel mm: 7.60...8.40
mm: (7.30...8.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2500
Supply-pump pressure bar: 7.80...8.40

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1600
Supply-pump pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 600
Supply-pump pressure bar: 2.20...2.80

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 2500
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...138.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2850
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2700
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 10.00...16.00
1000S.: (9.00...17.00)

9th speed 1/min: 2500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 22.40...24.80
1000S.: (21.30...25.90)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 22.30...24.70
1000S.: (21.20...25.80)

12th speed 1/min: 1600
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 22.30...23.30
1000S.: (20.50...25.10)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 16.30...19.30
1000S.: (14.80...20.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 390
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 390
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 8.00...12.00
1000S.: (5.00...15.00)

Dispersion cm³/: 2.5
1000S.: (2.5)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

4th speed 1/min: 500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...35.00
1000S.: (25.00...35.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...23.00
1000S.: (13.00...23.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...53.00
1000S.: (27.00...53.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.3...1.7
Ya	mm: 37.2...39.2
Yb	mm: 42.8...51.5

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 29.04.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R66-15
Type number : 0 460 494 165
Customer Part-No. :

Customer-specific information

Customer : VWB

Engine : 1.6L SANTANA/GOL

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 2.90...3.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

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Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm³/
1000S.: 33.00...34.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 475
Del. quantity cm³/
1000S.: 6.50...10.5

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm³/
1000S.: 11.50...17.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...65.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2400
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

electromagnet Volt: 12
2nd speed 1/min: 1500
TD travel mm: 2.90...3.30
mm: (2.40...3.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2400
Supply-pump pressure bar: 7.00...7.60
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump pressure bar: 4.90...5.50
Shutoff electromagnet Volt: 12
3rd speed 1/min: 400
Supply-pump pressure bar: 2.10...2.70
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40 (27.80...97.30)
2nd speed 1/min: 2400
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...138.90 (40.60...153.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 2.00...10.00 (1.00...11.00)
2nd speed 1/min: 2600
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 11.50...17.50 (10.50...18.50)
3rd speed 1/min: 2400
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 27.30...29.70 (26.20...30.80)
4th speed 1/min: 1500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 33.00...34.00 (31.30...35.70)
5th speed 1/min: 600
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 22.50...25.00 (20.50...26.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 475
Del. quantity cm³/1000s.: 0.00...3.00 (0.00...3.00)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 475
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 6.50...10.50 (4.50...12.50)

Dispersion cm³/1000s.: 2.0 (3.0)

2nd speed 1/min: 650
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...6.00 -

3rd speed 1/min: 1200
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00 -

Automatic starting fuel delivery:

1st speed 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 15.00...25.00 -

2nd speed 1/min: 400
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 33.00...43.00 -

4th speed 1/min: 100
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s.: 35.00...65.00 -

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation K mm: 3.2...3.4

KF	mm: 5.6...6.0
MS	mm: 1.2...1.6
SVS max.	mm: 1.8
Ya	mm: 38.6...40.6
Yb	mm: 50.4...63.3

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 28.04.94
replaces : 02.07.92
Calibrating oil : ISO-4113
Injection pump : VE4/9F2500R341
Type number : 9 460 620 003

Customer-specific information
Customer : ISUZU

Engine : 4EC1-BADT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil
return temp. °C
with viscosimeter : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 700
Setting value mm: 2.80...3.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

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Charge press hPa: 700
Setting value bar: 3.80...4.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 700
Del. quantity cm3/
1000S.: 46.90...47.90

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 33.80...37.80

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 8.50...12.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 425
Charge press hPa: 700
Del. quantity cm3/
1000S.: 19.60...25.60

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 38.00...70.00
mind 1000S.: 38.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 700
Inj.-qty. cm3/
difference 1000S.: 16.00...24.00
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: 700
TD-travel
difference mm: 1.40...1.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 620
Charge press hPa: 700
TD travel mm: 0.30...1.10
mm: (0.00...1.40)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 700
TD travel mm: 2.80...3.20
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press hPa: 700
TD travel mm: 5.60...6.40
mm: (5.30...6.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 2250
Charge press hPa: 700
TD travel mm: 6.60...7.40
mm: (6.30...7.70)

Supply-pump pressure characteristic:

1st speed 1/min: 620
Charge press. hPa: 700
Supply-pump
pressure bar: 2.20...2.80
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 700
Supply-pump
pressure bar: 2.80...4.40
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2250
Charge press. hPa: 700
Supply-pump
pressure bar: 6.20...6.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (75.00...119.50)
2nd speed 1/min: 2500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Overflow : 94.50...139.00
quantity cm³/10s: (94.50...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1000
Charge-air pressure-setting
point hPa: 340
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.30...44.30
1000S.: (41.30...46.30)

2nd speed 1/min: 2950
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

3rd speed 1/min: 2750
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 19.60...25.60
1000S.: (18.60...26.60)

4th speed 1/min: 2600
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.10...34.10
1000S.: (26.10...34.10)

5th speed 1/min: 2500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...37.10
1000S.: (33.30...37.90)

6th speed 1/min: 2300
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.50...47.50
1000S.: (43.80...48.20)

7th speed 1/min: 2000
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.30...47.30
1000S.: (43.80...47.80)

8th speed 1/min: 1500
Charge press. hPa: 700

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.90...47.90
1000S.: (45.10...49.70)
9th speed 1/min: 1500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.60...38.60
1000S.: (34.10...39.10)
10th speed 1/min: 1300
Charge press. hPa: 700

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.10...49.10
1000S.: (45.60...49.60)
11th speed 1/min: 600

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.80...37.80
1000S.: (32.80...38.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...12.50
1000S.: (6.50...14.50)

Dispersion cm³/: 2.5
1000S.: (3.0)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: 700
Inj.-qty. cm³/ : 16.00...24.00
difference 1000S.: (16.00...24.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 700
TD-travel : 1.40...1.60
difference mm: (1.40...1.60)

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Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...57.50
1000S.: (42.50...57.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...70.00
1000S.: (38.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.7...5.9
MS mm: 0.8...1.0
SVS max. mm: -

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN
 Edition : 11.6.94
 Replaces : 11.93
 Test oil : ISO-4113

Combination no. : 0 400 674 048

Injection pump
 Pump designation : PE4A95D42ORS2662-1
 EP type number : 0 410 694 994
 Governor
 Governor design. :
 RSV350...1100A8C2222

Governer no. : 0 420 233 339

Customer-spec. information
 Customer : HANOMAG

Engine : D944T

1st version kW : 97.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X500

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 4- 3

003

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.75...12.85

Del.quantity cm³/ : 12.9...13.1

100 s: (12.7...12.3)

Spread cm³ : 0.3

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.4

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.5

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 129.0...131.0

1000 : (127.0...133.0)

Spread cm³ : 3.50

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 11.80

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1185...1215

3rd rack travel in: 4.00

Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.75...12.85
2nd speed rpm : 500
Rack travel in m: 13.25...13.35
3rd speed rpm : 900
Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 129.5...133.5
1000 s: (127.5...135.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 122.5...137.5
1000 s: (120.0...140.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 7.4.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 614
 Injection pump
 Pump designation : PES6A95D410RS2844
 EP type number : 0 410 896 893
 Governor
 Governor design. : RQV300...1400AB1065
 -31L
 Governor no. : 0 420 212 246

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kw : 97.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 8.70...8.80

Del. quantity cm³/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300

Rack travel in mm : 4.4...4.6

Del. quantity cm³/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.85...1.35

2nd speed rpm : 5900
 travel mm : 3.25...3.75

3rd speed rpm : 640
 travel mm : 3.65...4.15

4th speed rpm : 925
 travel mm : 4.60...5.00

5th speed rpm : 1450
 travel mm : 8.05...8.15

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400

Del.quantity : 73.0...75.0
1000 : (71.0...77.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 109...117

Testing:
1st rack travel in: 7.75
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1510...1540
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 300
Rack travel in mm : 4.40...4.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 55.5...58.5
1000 s: (53.0...61.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.75
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 10.80...11.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 36
 Edition : 11.06.94
 Replaces : 07.04.89
 Test oil : ISO-4113

Combination no. : 0 400 863 015

Injection pump
 Pump designation : PES3A85D410/3RS2642
 EP type number : 0 410 883 989
 Governor
 Governor design. :
 RSV325...1200A2C2102

Governer no. : 0 420 232 508

Customer-spec. information
 Customer : KHD

Engine : F3L913

1st version kw : 44.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 6.8...6.9

100 s: (6.6...7.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 0.9...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 68.5...69.5

1000 : (66.5...71.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 94...102

Testing:

1st rack travel in: 9.30

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1275...1305
3rd rack travel in: 4.00
Speed rpm : 1295...1325
4th rack travel in: 1460
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 7.80...8.00
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 10.70...10.90
3rd speed rpm : 750
Rack travel in m: 10.65...10.85
4th speed rpm : 875
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 59.0...61.0
1000 s: (56.5...63.5)
Speed rpm : 750
Del.quantity cm3/ : 59.0...61.0
1000 s: (56.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)
Rack travel in mm : 19.50...21.00

Remarks:

: FENDT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 34
 Edition : 11.06.94
 Replaces : 30.11.93
 Test oil : ISO-4113

Combination no. : 0 400 864 070

Injection pump
 Pump designation : PES4A85D410/3RS2732
 EP type number : 0 410 884 947
 Governor
 Governor design. :
 RSV325...1175A8C2223

-2L
 Governor no. : 0 420 232 484

Customer-spec. information
 Customer : KHD

Engine : F4L913

1st version kw : 56.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 6.8...6.9

100 s: (6.6...7.1)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 300

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 68.0...69.0

1000 : (66.0...71.0)

Spread cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 8.90

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1245...1275
3rd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1425
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 9.90...10.00
2nd speed rpm : 500
Rack travel in m: 10.55...10.65
4th speed rpm : 800
Rack travel in m: 10.25...10.45

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 61.0...63.0
1000 s: (58.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 17.70...17.90

Remarks:

: RENAULT

APPLICATION

Tractor (tractor engines)

D10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 43
 Edition : 11.06.94
 Replaces : 02.08.91
 Test oil : ISO-4113

Combination no. : 0 400 864 074

Injection pump
 Pump designation : PES4A85D410/3RS2638
 EP type number : 0 410 884 950
 Governor
 Governor design. :
 RSV325..1150ADC2168-

4L
 Governor no. : 0 420 232 524

Customer-spec. information
 Customer : KHD

Engine : BF4L913T

1st version kw : 60.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 7.1...7.2

100 s: (6.9...7.4)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 9.0...9.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 71.5...72.5

1000 : (69.5...74.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 101...109

Testing:

1st rack travel in: 10.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1270...1300
3rd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1500
Speed rpm : 0.30...1.40

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 9.00...9.20
Rack travel in mm : 2.00
Speed rpm : 735...795

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 12.60...12.80
3rd speed rpm : 800
Rack travel in m: 12.00...12.10
4th speed rpm : 940
Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 71.5...73.5
1000 s: (69.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 19.50...21.00

Remarks:

: DX3X

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 11.06.94
 Replaces : 14.02.92
 Test oil : ISO-4113

Combination no. : 0 400 865 019

Injection pump
 Pump designation : PESSA80D410/3RS2526
 EP type number : 0 410 885 004
 Governor
 Governor design. :
 RSV325...1150A8C604-

Governer no. : 0 420 232 573

Customer spec. information
 Customer : KHD

Engine : F5L912

1st version kW : 62.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 6.5...6.6

100 s: (6.3...6.7)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 8.9...9.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.6)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1130

Del.quantity : 65.0...66.0

1000 : (63.5...67.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 11.60

Speed rpm : 1170...1180

2nd rack travel in: 4.00

Speed rpm : 1215...1245
3rd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 8.90...9.10
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1130
Rack travel in m: 12.60...12.70
2nd speed rpm : 500
Rack travel in m: 13.30...13.40
4th speed rpm : 910
Rack travel in m: 12.90...13.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1170...1180

Remarks:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 11.6.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 866 177

Injection pump
Pump designation : PES6A95D12ORS2859
EP type number : 0 410 896 890
Governor
Governor design. :
RSV410...1050AQC2260

Governer no. : 0 420 233 342

Customer-spec. information
Customer : CUMMINS

Engine : 6 BT

1st version kw : 150.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.00

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.10...2.20
: (2.05...2.25)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.95...11.05

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.8)

2nd speed rpm : 430

Rack travel in mm : 6.9...7.0

Del.quantity cm³/ : 1.4...1.8
100 s: (1.1...2.0)

Spread cm³ : 0.5

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 81...89

Testing:

1st rack travel in: 10.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
3rd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 430
Rack travel in mm : 6.50

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 430
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.95...11.05
2nd speed rpm : 500
Rack travel in m: 10.95...11.15

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.05...11.15

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 550
Rack travel in m: 10.60...10.70
3rd pressure hPa : 260
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 85.5...87.5
1000 s: (83.5...89.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1090...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 107.5...122.5
1000 s: (105.0...125.0)
Rack travel in mm : 13.80...14.20

Remarks:

Start-of-delivery mark 11.5° cam angle
after start of delivery cyl. 1

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.40 bar...0.50 bar

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR
 Edition : 11.6.94
 Replaces : 01.12.93
 Test oil : ISO-4113

Combination no. : 0 400 876 410

Injection pump
 Pump designation : PES6A95D41ORS2838
 EP type number : 0 410 896 895
 Governor
 Governor design. :
 RSV400...1050A2C2263

-6L
 Governor no. : 0 420 232 589

Customer-spec. information
 Customer : FNH-GEOTECH

Engine : 7.5 L5

1st version kW : 119.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

D17

Test pressure, bar: 25...27

Prestroke mm : 2.55...2.65
 : (2.50...2.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.75...10.85

Del. quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.8)

2nd speed rpm : 450.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 1.3...1.7

100 s: (1.1...2.0)

Spread cm³ : 0.5

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del. quantity : 94.5...96.5

1000 : (92.5...98.5)

Spread cm³ : 3.50

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 9.80
Speed rpm : 1293...1298
2nd rack travel in: 4.00
Speed rpm : 1368...1373
4th rack travel in: 1475
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 450
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 510...570

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.75...10.85
2nd speed rpm : 600
Rack travel in m: 10.75...10.95

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.70...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.20...8.40
2nd pressure hPa : 475
Rack travel in m: 10.15...10.25
3rd pressure hPa : 310
Rack travel in m: 8.80...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 99.0...103.0
1000 s: (97.0...105.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 60.5...62.5
1000 s: (58.5...64.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1293...1298

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 183.0...203.0
1000 s: (180.0...206.0)
Rack travel in mm : 18.30

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.50
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Hydraulic latching of starting
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.40 bar...0.50 bar

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 11.06.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 926AA
 Injection pump
 Pump designation : PE6P110A720RS3040-2
 EP type number : 0 411 816 774
 Governor
 Governor design. :
 RQV200...1100PA555-4
 Governor no. : 0 421 813 878

Customer-spec. information
 Customer : SCANIA

Engine : DS11

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.90...13.00
 Del. quantity cm³/ : 17.1...17.3
 100 s: (16.8...17.6)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 250
 Rack travel in mm : 4.4...4.6
 Del. quantity cm³/ : 1.1...1.7
 100 s: (0.8...2.0)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.10...1.50
 2nd speed rpm : 350
 travel mm : 2.30...2.90
 3rd speed rpm : 700
 travel mm : 4.70...5.30
 4th speed rpm : 1050
 travel mm : 8.40...8.60
 5th speed rpm : 1165
 travel mm : 9.90...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1070
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500

Del.quantity : 171.0...173.0
1000 : (169.0...175.0)
Spread cm3 : 8.00
1000 : (12.0)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 150
Minimum rack trave: 5.50
Speed rpm : 250
Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 12.90...13.00
2nd speed rpm : 1000
Rack travel in m: 12.90...13.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1000

Del.quantity cm3/ : 160.0...168.0
1000 s: (158.0...172.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 112.0...116.0
1000 s: (110.0...118.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 245.0...285.0
1000 s: (241.0...289.0)
Rack travel in mm : 20.00...21.00

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAE 12,0 a
Edition : 14.06.94
Replaces : 05.10.92
Test oil : ISO-4113

Combination no. : 0 401 846 933

Injection pump
Pump designation : PE6P110A32ORS3260
EP type number : 0 411 816 775
Governor
Governor design. : RQ250/1050PA969
Governor no. : 0 421 801 538

Customer-spec. information
Customer : HAEP

Engine : X6130 NA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2-
4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 13.0...13.2
100 s : (12.7...13.4)

Spread cm³ : 0.4
100 s : (0.7)

2nd speed rpm : 250.0
Rack travel in mm : 7.6...8.0
Del. quantity cm³/ : 1.5...2.0
100 s : (1.2...2.2)
Spread cm³ : 0.4
100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 500
Rack travel in mm : 12.60...14.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Del. quantity : 130.0...132.0
1000 : (127.5...134.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Setting point:
Speed rpm : 500
Rack travel in mm : 13.4

Testing:
1st rack travel in: 10.40
Speed rpm : 1085...1100
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.80

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack trave: 9.30
Speed rpm : 250
Rack travel in mm : 7.70...7.90
Rack travel in mm : 2.00
Speed rpm : 295...335

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 12.10...12.20
2nd speed rpm : 1035
Rack travel in m: 11.25...11.55

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1035
Del.quantity cm3/ : 129.5...135.5
1000 s: (126.5...138.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1085...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 2.11.93
 Replaces : 21.09.92
 Test oil : ISO-4113
 Combination no. : 0 401 846 950
 Injection pump
 Pump designation : PE6P110A72ORS3289
 EP type number : 0 411 816 781
 Governor
 Governor design. :
 RQV200...1100PA555-5
 Governor no. : 0 421 813 943

Customer-spec. information
 Customer : SCANIA

Engine : DS11 63A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test Lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 17.1...17.3

100 s: (16.9...17.5)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.9...2.5

100 s: (1.6...2.8)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.70...1.10

2nd speed rpm : 350
 travel mm : 2.00...2.60

3rd speed rpm : 650
 travel mm : 4.90...5.50

4th speed rpm : 1145
 travel mm : 8.30...8.50

5th speed rpm : 1300
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del. quantity : 171.0...173.0
1000 : (168.0...176.0)
Spread cm3 : 8.00
1000 : (12.0)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1280...1310
4th rack travel in: 1420
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 325
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 400...460

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.20
2nd pressure hPa : 200
Rack travel in m: 11.70...11.80
3rd pressure hPa : 140
Rack travel in m: 10.65...10.95

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1100
Del. quantity cm3/ : 160.0...168.0
1000 s: (158.0...170.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm3/ : 112.0...116.0
1000 s: (110.0...118.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 240.0...290.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.50...6.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 j
 Edition : 11.6.94
 Replaces : 29.11.91
 Test oil : ISO-4113

Combination no. : 0 401 846 959

Injection pump
 Pump designation : PE6P120A720RS3293
 EP type number : 0 411 826 801
 Governor
 Governor design. : RQV225...10J0PA1016
 -6
 Governor no. : 0 421 813 971

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8215.22.400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 375.0

Rack travel in mm : 7.2...7.4

Del.quantity cm³/ : 2.5...3.1

100 s: (2.2...3.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 7.80...8.00

2nd speed rpm : 225
 travel mm : 0.60...1.00

3rd speed rpm : 700
 travel mm : 3.80...4.40

4th speed rpm : 1300
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1110

Rack travel in mm : 11.90...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Testing:
1st rack travel in: 13.60
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 75...83

Testing:
Speed rpm : 300
Minimum rack travel: 9.50
Speed rpm : 375
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION
Speed rpm : 380...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 14.60...14.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.10
2nd pressure hPa : 260
Rack travel in m: 13.40...13.50
3rd pressure hPa : 200
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm3/ : 219.0...225.0
1000 s: (216.0...228.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 154.0...156.0
1000 s: (151.0...159.0)
Spread cm3 : -
1000 s: (8.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 245.0...275.0
1000 s: (241.0...279.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 11.6.94
 Replaces : 27.11.92
 Test oil : ISO-4113

Combination no. : 0 401 846 964

Injection pump
 Pump designation : PE6P110A320RS3302
 EP type number : 0 411 816 787
 Governor
 Governor design. : RQ300/1000PA1012-1
 Governor no. : 0 421 801 648

Customer-spec. information
 Customer : DAF

Engine : LT 195 L

1st version kW : 195.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10
 & maximum rack tra: 13.9...14.9
 Difference ° CS : 3.00...5.00

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.40...14.50

Del. quantity cm³/ : 17.3...17.5

100 s: (17.0...17.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm³/ : 2.7...3.2

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del. quantity : 173.0...175.0

1000 : (170.5...177.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.45
Speed rpm : 1044...1060
2nd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:
Speed rpm : 200
Minimum rack travel: 11.00
Speed rpm : 300
Rack travel in mm : 7.60...7.80
Rack travel in mm : 2.50
Speed rpm : 350...390

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 15.10...15.20
2nd speed rpm : 1000
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 600

1st pressure hPa : 530
Rack travel in m: 14.00...14.10
2nd pressure hPa : 380
Rack travel in m: 13.00...13.20
3rd pressure hPa : -
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 131.0...133.0
1000 s: (128.5...135.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.45
Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 330.0...370.0
1000 s: (327.0...373.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.60...7.80
Del.quantity cm³/ : 27.5...32.5
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (11.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 11.6.94
 Replaces : 2.12.93
 Test oil : ISO-4113

Combination no. : 0 401 846 971

Injection pump
 Pump designation : PE6P110A320RS330ZZ
 EP type number : 0 411 816 789
 Governor
 Governor design. : RQ300/1000PA1012-1
 Governor no. : 0 421 801 648

Customer-spec. information
 Customer : DAF

Engine : LS 195 M

1st version kw : 195.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10
 & maximum rack tra: 13.5...14.5
 Difference ° CS : 3.00...5.00

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 16.5...16.7

100 s: (16.2...16.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 2.7...3.2

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: 1.10)

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 165.0...167.0

1000 : (162.5...169.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.95
Speed rpm : 1044...1060
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 11.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 13.90...14.00
2nd speed rpm : 1000
Rack travel in m: 13.85...14.05

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 600
1st pressure hPa : 480
Rack travel in m: 13.50...13.60
2nd pressure hPa : 340
Rack travel in m: 12.50...12.70
3rd pressure hPa : -
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 125.0...127.0
1000 s: (122.5...129.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.95
Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 330.0...370.0
1000 s: (327.0...373.0)
Rack travel in mm: 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EFS) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
Edition : 11.6.94
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 972
Injection pump
Pump designation : PE6P110A32ORS3302Y
EP type number : 0 411 816 790
Governor
Governor design. : RQ300/1000PA1012-1
Governor no. : 0 421 801 648

Customer-spec. information
Customer : DAF

Engine : LT 160 L

1st version kw : 160.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm. : 0,6

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 14.00...15.00
Firing order : 1- 5- 3- 6- 2-
4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 14.1...14.3

100 s: (13.8...14.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.7

Del.quantity cm3/ : 2.7...3.2

100 s: (2.5...3.5)

Spread cm3 : 0.8

100 s: 1.10)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 141.0...143.0

1000 : (138.5...145.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.05

Speed rpm : 1044...1060
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 11.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.50
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 13.00...13.10
2nd speed rpm : 1000
Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 600
1st pressure hPa : 360
Rack travel in m: 12.70...12.80
2nd pressure hPa : 270
Rack travel in m: 12.00...12.20
3rd pressure hPa : -
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 108.5...110.5
1000 s: (106.0...113.0)

BREAKAWAY

1st version

E04

1mm rack travel less than
full load rack tr: 12.05
Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 330.0...370.0
1000 s: (327.0...373.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 11.6.94
 Replaces : 3.12.93
 Test oil : ISO-4113

Combination no. : 0 401 846 982

Injection pump
 Pump designation : PE6P110A320RS3302X
 EP type number : 0 411 816 794
 Governor
 Governor design. : RQ300/1000PA1012-1
 Governor no. : 0 421 801 648

Customer-spec. information
 Customer : DAF

Engine : LS 160 M

1st version kW : 160.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10
 & maximum rack tra: 12.5...13.5
 Difference ° CS : 3.00...5.00

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.95...14.15

Del. quantity cm³/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 7.1...7.3
 Del. quantity cm³/ : 2.7...3.2
 100 s: (2.5...3.5)
 Spread cm³ : 0.5
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 1000
 Del. quantity : 144.0...146.0
 1000 : (141.5...148.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.05
Speed rpm : 1044...1060
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:
Speed rpm : 200
Minimum rack travel: 11.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 13.00...13.10
2nd speed rpm : 1000
Rack travel in m: 12.95...13.15

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 850
Pressure hPa : 1000
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 600

1st pressure hPa : 310
Rack travel in m: 12.60...12.70
2nd pressure hPa : 220
Rack travel in m: 11.90...12.10
3rd pressure hPa : -
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 110.5...112.5
1000 s: (108.0...115.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.05
Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 330.0...370.0
1000 s: (327.0...373.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 08.06.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 755

Injection pump
Pump designation :
PES6P120A720/3LS3255
-2
EP type number : 0 412 026 768
Governor
Governor design. : RQ300/1000PA813-23
Governor no. : 0 421 801 710

Customer-spec. information
Customer : MAN

Engine : D2866LU08

1st version kW : 230.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

E07

Test pressure, bar: 30...32
Prestroke mm : 3.70...3.80
 : (3.65...3.85)
Rack travel in mm : 14.50...15.50
Firing order : 6- 2- 4- 1- 5-
3

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.85...13.95

Del. quantity cm³/ : 20.4...20.6

100 s : (20.1...20.9)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.5

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del. quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.90
Speed rpm : 1045...1061
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1260
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack travel: 9.80
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.85...13.95

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.20...11.50
2nd pressure hPa : 110
Rack travel in m: 11.60...11.70
3rd pressure hPa : 450
Rack travel in m: 13.15...13.45

START CUT-OUT

Speed 1/min : 220 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ : 209.0...215.0
1000 s: 206.0...218.00)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1045...1061

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

: MAN-NR. 3-7336

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 26.5.94
 Replaces : 15.06.93
 Test oil : ISO-4113
 Combination no. : G 402 046 841
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -4K
 Governor no. : 0 421 815 328

Customer spec. information
 Customer : NAVISTAR

Engine : DTA-408
 1st version kw : 171.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 076
 Inlet press., bar : 2.80
 Overflow quantity min. 1/h: 240...260
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 12.50...12.60
 Del. quantity cm³/ : 14.4...14.6
 100 s: (14.2...14.8)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.3...5.5
 Del. quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00
 2nd speed rpm : 500
 travel mm : 3.80...4.20
 3rd speed rpm : 800
 travel mm : 5.80...6.20
 4th speed rpm : 1300
 travel mm : 8.90...9.10
 5th speed rpm : 1500
 travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200

Del. quantity : 144.5...146.5
1000 : (142.5...148.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 11.90
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...80

Testing:
Speed rpm : 275
Minimum rack travel: 6.50
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 355...525

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.50...12.60
2nd speed rpm : 1300
Rack travel in m: 12.80...13.00
3rd speed rpm : 700
Rack travel in m: 11.80...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.80...13.00

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 300
Rack travel in m: 9.50...9.60
3rd pressure hPa : 890

E10

Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1300
Del. quantity cm³/ : 151.5...155.5
1000 s: (149.5...157.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del. quantity cm³/ : 65.0...69.0
1000 s: (63.0...71.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR

#1819917C91

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 14.10.93
 Replaces : 08.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 846
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -7K
 Governor no. : 0 421 815 331

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kw : 130.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 11.00...11.10
 Del. quantity cm³/ : 10.0...10.2
 100 s: (9.8...10.4)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 5.1...5.3
 Del. quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00
 2nd speed rpm : 500
 travel mm : 3.80...4.20
 3rd speed rpm : 800
 travel mm : 5.80...6.20
 4th speed rpm : 1300
 travel mm : 8.90...9.10
 5th speed rpm : 1500
 travel mm : 10.40...10.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1500
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900
Aneroid pressure h: 1200
Del.quantity : 100.0...102.0
1000 : (98.0...104.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 10.70
Speed rpm : 1360...1390
2nd rack travel in: 4.00
Speed rpm : 1500...1510
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:

Speed rpm : 275
Minimum rack trave: 6.20
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.00...11.10
2nd speed rpm : 1300
Rack travel in m: 11.70...11.90
3rd speed rpm : 700
Rack travel in m: 10.30...10.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 11.70...11.90

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 8.80...9.20
2nd pressure hPa : 270
Rack travel in m: 9.80...9.90
3rd pressure hPa : 580
Rack travel in m: 11.10...11.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ : 122.0...126.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del.quantity cm³/ : 69.0...73.0
1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1360...1390

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR
#1819923C91

Bow dimension:

Sliding-sleeve position = 37.0 mm
Setting and blocking of pointer of

start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70
mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 26.5.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 848
 Injection pump
 Pump designation : PES6P100A320LS3325
 EP type number : 0 412 006 709
 Governor
 Governor design. : RQV350...1200PA1042
 -8K
 Governor no. : 0 421 815 346

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 205.5
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

 Rack travel in mm : 15.20...15.30

 Del.quantity cm³/ : 17.4...17.6

 100 s: (17.2...17.8)

Spread cm³ : 0.8

 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del.quantity cm³/ : 1.8...2.2
 100 s: (1.5...2.4)
 Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00
 2nd speed rpm : 500
 travel mm : 3.50...3.90
 3rd speed rpm : 800
 travel mm : 6.20...6.60
 4th speed rpm : 1250
 travel mm : 9.30...9.50
 5th speed rpm : 1400
 travel mm : 10.50...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 1200

Del.quantity : 174.5...176.5
1000 : (172.5...178.5)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 115...127

Testing:
1st rack travel in: 14.60
Speed rpm : 1240...1275
2nd rack travel in: 4.00
Speed rpm : 1450...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...82

Testing:
Speed rpm : 275
Minimum rack travel: 8.60
Speed rpm : 350
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 15.20...15.30
2nd speed rpm : 1200
Rack travel in m: 15.60...15.80
3rd speed rpm : 450
Rack travel in m: 13.00...13.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 15.60...15.80

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 10.10...10.50
2nd pressure hPa : 405
Rack travel in m: 12.00...12.10
3rd pressure hPa : 815

Rack travel in m: 14.00...14.40

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm3/ : 182.0...186.0
1000 s: (180.0...188.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm3/ : 69.0...71.0
1000 s: (66.0...74.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.60
Speed rpm : 1240...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:
: NAVISTAR
#1819924C91

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 11.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 856
 Injection pump
 Pump designation : PE6P110A32ORS3329Z
 EP type number : 0 412 016 744
 Governor
 Governor design. : RQV325...1300PA1119
 Governor no. : 0 421 814 083

Customer-spec. information
 Customer : DAF

Engine : NS133M

1st version kw : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 19.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 14.5...14.7

100 s: (14.2...15.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 2.3...2.8

100 s: (2.1...3.1)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 9.50...12.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 145.0...147.0

1000 : (142.0...150.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 10.85

Speed rpm : 1337...1347

2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 79...87

Testing:
Speed rpm : 225
Minimum rack trave: 8.80
Speed rpm : 325
Rack travel in mm : 4.40...4.60

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 11.80...11.90
3rd speed rpm : 1300
Rack travel in m: 11.80...11.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 600

1st pressure hPa : 310
Rack travel in m: 10.50...10.60
2nd pressure hPa : 130
Rack travel in m: 7.75...7.95
3rd pressure hPa : -
Rack travel in m: 6.50...6.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 143.0...147.0
1000 s: (140.0...150.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 87.0...89.0
1000 s: (84.5...91.5)

BREAKAWAY

E17

1st version
1mm rack travel less than

full load rack tr: 10.85
Speed rpm : 1337...1347

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 6.50...6.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 11.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 861
 Injection pump
 Pump designation : PE6P110A32ORS3329
 EP type number : 0 412 016 743
 Governor
 Governor design. : RQ325/1300PA1150
 Governor no. : 0 421 801 716

Customer-spec. information
 Customer : DAF

Engine : NS156M

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 19.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 11.80...11.90
 Del.quantity cm³/ : 14.3...14.5
 100 s : (14.0...14.8)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 325.0
 Rack travel in mm : 5.1...5.3
 Del.quantity cm³/ : 2.3...2.8
 100 s : (2.1...3.1)
 Spread cm³ : 0.4
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 143.0...145.0
 1000 : (140.0...148.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.85
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.50

Testing:

Speed rpm : 225
Minimum rack travel: 5.90
Speed rpm : 325
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 415

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 11.80...11.90
3rd speed rpm : 1300
Rack travel in m: 11.80...11.90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 600

1st pressure hPa : 370
Rack travel in m: 10.70...10.80
2nd pressure hPa : 200
Rack travel in m: 8.45...8.65
3rd pressure hPa : -
Rack travel in m: 7.05...7.25

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm³/ : 143.0...147.0
1000 s: (140.0...150.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 97.5...99.5
1000 s: (95.0...102.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.85
Speed rpm : 1340...1350

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE
 Edition : 11.6.94
 Replaces : 13.12.93
 Test oil : ISO-4113
 Combination no. : 0 402 638 807
 Injection pump
 Pump designation : PE8P120A120LS7127
 EP type number : 0 412 628 817
 Governor
 Governor design. : RQ300/1100PA134-3
 Governor no. : 0 421 801 655

Customer spec. information
 Customer : SNF

Engine : WD 815.72/73

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

E20

Firing order : 1- 5- 4- 8- 6-
 7- 2

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 500
 Rack travel in mm : 14.50...14.60
 Del. quantity cm³/ : 14.2...14.4
 100 s : (13.9...14.7)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.9
 Del. quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 15.40...16.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 500
 Aneroid pressure h: 1500
 Del. quantity : 235.0...241.0
 1000 : (232.0...244.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 16.0
 Testing:
 1st rack travel in: 13.30
 Speed rpm : 1145...1161

2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.40...14.70
2nd speed rpm : 500
Rack travel in m: 14.40...14.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.40...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 790
Rack travel in m: 13.20...13.30
3rd pressure hPa : 490
Rack travel in m: 11.15...11.35

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1100
Del.quantity cm³/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm³ : 12.00
1000 s: (15.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 142.0...144.0
1000 s: (139.0...147.0)

Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...210.0
1000 s: (176.0...214.0)
Rack travel in mm : 15.50...16.50

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE
 Edition : 11.6.94
 Replaces : 13.12.93
 Test oil : ISO-4113
 Combination no. : 0 402 638 808
 Injection pump
 Pump designation : PE8P120A120LS7127
 EP type number : 0 412 628 817
 Governor
 Governor design. :
 RQV300...1100PA785-3
 Governor no. : 0 421 814 004

Customer-spec. information
 Customer : SNF

Engine : WD 815.72/73

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 4- 8- 6- 3-
 7- 2

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 500
 Rack travel in mm : 14.50...14.60
 Del.quantity cm³/ : 14.2...14.4
 100 s: (13.9...14.7)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 250.0
 Rack travel in mm : 6.3...6.9
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.95...1.35
 2nd speed rpm : 355
 travel mm : 1.70...2.20
 3rd speed rpm : 410
 travel mm : 2.20...2.70
 4th speed rpm : 1150
 travel mm : 8.35...8.65
 5th speed rpm : 1390
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1220
 Rack travel in mm : 11.50...14.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 500

Aneroid pressure h: 1500
Del. quantity : 235.0...241.0
1000 : (232.0...244.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 103...111

Testing:
1st rack travel in: 13.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 70...78

Testing:
Speed rpm : 150
Minimum rack travel: 8.60
Speed rpm : 250
Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.40...14.70
2nd speed rpm : 500
Rack travel in m: 14.40...14.70

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.40...14.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 790
Rack travel in m: 13.20...13.30
3rd pressure hPa : 520
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1100
Del. quantity cm³/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm³ : 12.00
1000 s: (15.00)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 142.0...144.0
1000 s: (139.0...147.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...210.0
1000 s: (176.0...214.0)
Rack travel in mm : 15.50...16.50

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 13.6.94
 Replaces : 14.12.93
 Test oil : ISO-4113

Combination no. : 0 402 646 612

Injection pump
 Pump designation : PE6P120A320RS7248
 -10X
 EP type number : 0 412 626 907
 Governor
 Governor design. : RQ275/1150PA987
 Governor no. : 0 421 801 578

Customer-spec. information
 Customer : DAF

Engine : RS 200 M

1st version kw : 200.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 12.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.2...12.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.3...1.9
 100 s: (1.0...2.2)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 171.0...173.0
 1000 : (168.0...176.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 15.8

Testing:

1st rack travel in: 10.75
Speed rpm : 1184...1200
2nd rack travel in: 4.00
Speed rpm : 1255...1285
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.9

Testing:

Speed rpm : 175
Minimum rack trave: 7.00
Speed rpm : 275
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 320...360

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.20...11.30
2nd pressure hPa : 200
Rack travel in m: 10.10...10.30
3rd pressure hPa : -
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 120.5...122.5
1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.75
Speed rpm : 1184...1200

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 13.6.94
 Replaces : 15.12.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 613
 Injection pump
 Pump designation : PE6P120A320RS7248
 -10W
 EP type number : 0 412 626 908
 Governor
 Governor design. : RQ275/1150PA987
 Governor no. : 0 421 801 578

Customer-spec. information
 Customer : DAF

Engine : RS 180 M

1st version kw : 180.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

E26

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.2...12.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 153.0...155.0

1000 : (150.0...158.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 15.8

Testing:

1st rack travel in: 9.75
Speed rpm : 1184...1200
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275
Rack travel in mm : 4.9

Testing:

Speed rpm : 175
Minimum rack trave: 7.00
Speed rpm : 275
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.70...10.80
2nd speed rpm : 1150
Rack travel in m: 10.65...10.85

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.40...10.50
2nd pressure hPa : 240
Rack travel in m: 9.90...10.10
3rd pressure hPa : -
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

E27

Aneroid pressure h: -

Speed rpm : 600
Del.quantity cm³/ : 121.5...123.5
1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.75
Speed rpm : 1184...1200

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 13.6.94
 Replaces : 15.12.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 614
 Injection pump
 Pump designation : PE6P120A320RS7248
 -10W
 EP type number : 0 412 626 908
 Governor
 Governor design. : RQV275...1150PA986
 Governor no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 180 M

1st version kw : 180.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.2...12.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.2...5.6

Del. quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.19...1.69

2nd speed rpm : 365

travel mm : 2.27...2.77

3rd speed rpm : 450

travel mm : 2.82...3.32

4th speed rpm : 799

travel mm : 4.96...5.46

5th speed rpm : 1206

travel mm : 7.99...8.49

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
Speed rpm : 1350
Rack travel in mm : 8.40...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 153.0...155.0
1000 : (150.0...158.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 9.75
Speed rpm : 1187...1197
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 175
Minimum rack trave: 7.40
Speed rpm : 275
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 315...365

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.70...10.80
2nd speed rpm : 1150
Rack travel in m: 10.65...10.85

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 10.40...10.50
2nd pressure hPa : 240
Rack travel in m: 9.90...10.10
3rd pressure hPa : -
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 121.5...123.5
1000 s: (118.5...126.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack in: 9.75
Speed rpm : 1187...1197

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 13.6.94
 Replaces : 14.12.93
 Test oil : ISO-4113

Combination no. : 0 402 646 615

Injection pump
 Pump designation : PE6P120A32ORS7248
 -1GX
 EP type number : 0 412 626 907
 Governor
 Governor design. : RQV275...1150PA986
 Governor no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 200 M

1st version kW : 200.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

F02

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 12.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.2...12.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.19...1.69

2nd speed rpm : 365
 travel mm : 2.27...2.77

3rd speed rpm : 450
 travel mm : 2.82...3.32

4th speed rpm : 799
 travel mm : 4.96...5.46

5th speed rpm : 1206
 travel mm : 7.99...8.49

GUIDE SLEEVE POSITION
 Control-lever position

Degree: -1
Speed rpm : 1335
Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1000
Del. quantity : 171.0...173.0
1000 : (168.0...176.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 10.75
Speed rpm : 1187...1197
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 175
Minimum rack travel: 7.40
Speed rpm : 275
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 315...421

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.70...11.80
2nd speed rpm : 1150
Rack travel in m: 11.65...11.85

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.70...11.80

Measurement

F03

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.20...11.30
2nd pressure hPa : 200
Rack travel in m: 10.10...10.30
3rd pressure hPa : -
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 120.5...122.5
1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.75
Speed rpm : 1187...1197

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : TAT
 Edition : 13.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 616
 Injection pump
 Pump designation : PE6P120A320LS7278
 EP type number : 0 412 626 880
 Governor
 Governor design. : RQV325...100PA1058
 Governor no. : G 421 814 047

Customer-spec. information
 Customer : TAT

Engine : M64DS

1st version kW : 242.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

FO4

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 23.2...23.4

100 s: (22.9...23.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.8...5.4

Del. quantity cm³/ : 2.1...2.7

100 s: (1.8...3.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.30...1.80

2nd speed rpm : 404
 travel mm : 2.16...2.66

3rd speed rpm : 500
 travel mm : 3.10...3.60

4th speed rpm : 764
 travel mm : 5.52...6.02

5th speed rpm : 1056
 travel mm : 8.41...8.81

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1500
Del.quantity : 232.0...234.0
1000 : (229.0...237.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 12.45
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:

Speed rpm : 225
Minimum rack travel: 6.70
Speed rpm : 325
Rack travel in mm : 4.80...5.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 1000
Rack travel in m: 12.95...13.05
3rd pressure hPa : 520
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 141.0...145.0
1000 s: (139.0...147.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.45
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 290.0...330.0
1000 s: (286.0...334.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 7.6.94
 Replaces : 05.94
 Test oil : ISO-4113

Combination no. : 0 402 648 928

Injection pump
 Pump designation : PE8P120A320LS7847-2
 EP type number : 0 412 628 835
 Governor
 Governor design. : RQ300/1050PA1030-19
 Governor no. : 0 421 801 748

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3-
 5- 4- 1

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.30 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 14.75...14.85

Del. quantity cm³/ : 23.8...24.0
 100 s : (23.5...24.3)

Spread cm³ : 0.6
 100 s : (0.9)

2nd speed rpm : 300
 Rack travel in mm : 5.40...6.00
 Del. quantity cm³/ : 1.0...1.6
 100 s : (0.7...1.9)
 Spread cm³ : 0.6
 100 s : (1.0)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 1200
 Del. quantity : 238.0...240.0
 1000 : (235.0...243.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 13.00
 Speed rpm : 1090...1106
 2nd rack travel in: 4.00
 Speed rpm : 1175...1205

4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.20
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 14.75...14.85
2nd speed rpm : 1050
Rack travel in m: 13.95...14.15
3rd speed rpm : 950
Rack travel in m: 14.10...14.30
4th speed rpm : 775
Rack travel in m: 14.70...14.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 14.75...14.85

Measurement

Speed 1/min : 400
1st pressure hPa : 450
Rack travel in m: 12.80...13.00
2nd pressure hPa : 300
Rack travel in m: 11.75...12.05
3rd pressure hPa : -
Rack travel in m: 10.25...10.55

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del. quantity cm³/ : 210.0...214.0
1000 s: (207.0...217.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 450
Speed rpm : 400

Del. quantity cm³/ : 164.5...167.5
1000 s: (161.5...170.5)

Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 104.0...106.0
1000 s: (101.0...109.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 02.94
 Replaces : 10.93
 Test oil : ISO-4113
 Combination no. : 0 402 648 933
 Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/950PA1031-3
 Governor no. : 0 421 801 646

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kw : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3-
 5-
 4- 1

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550
 Rack travel in mm : 13.55...13.65
 Del. quantity cm³/ : 23.8...24.0
 100 s : (23.5...24.3)

Spread cm³ : 0.6
 100 s : (0.9)

2nd speed rpm : 300
 Rack travel in mm : 5.2...5.8
 Del. quantity cm³/ : 1.0...1.6
 100 s : (0.7...1.9)
 Spread cm³ : 0.6
 100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 1200
 Del. quantity : 238.0...240.0
 1000 : (235.0...243.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 93.0...101.0

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.00
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 69.0...77.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:
Speed rpm : 200
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.55...13.65
2nd speed rpm : 950
Rack travel in m: 12.90...13.10
3rd speed rpm : 900
Rack travel in m: 13.15...13.25
4th speed rpm : 875
Rack travel in m: 13.20...13.40
5th speed rpm : 800
Rack travel in m: 13.55...13.65

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.55...13.65

Measurement

Speed 1/min : 400

1st pressure hPa : 450
Rack travel in m: 12.10...12.20
2nd pressure hPa : 300

Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.65...10.95

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 950
Del. quantity cm³/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 450
Speed rpm : 400
Del. quantity cm³/ : 160.5...163.5
1000 s: (157.5...166.5)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 107.0...109.0
1000 s: (104.0...112.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 17.03.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 933
 Injection pump
 Pump designation : PE8P120A320LS7847-3
 EP type number : 0 412 628 886
 Governor
 Governor design. : RQ300/950PA1031-14
 Governor no. : 0 421 801 720

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3-
 5-
 4- 1

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.30 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550
 Rack travel in mm : 14.75...14.85
 Del.quantity cm3/ : 23.8...24.0
 100 s: (23.5...24.3)
 Spread cm3 : 0.6
 100 s: (0.9)
 2nd speed rpm : 300
 Rack travel in mm : 5.4...5.6
 Del.quantity cm3/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm3 : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.52...1.72
 2nd speed rpm : 443
 travel mm : 4.25...4.45
 3rd speed rpm : 550
 travel mm : 5.9...6.1
 4th speed rpm : 1009
 travel mm : 6.74...6.94

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 550
Aneroid pressure h: 1200
Del. quantity : 238.0...240.0
1000 : (235.0...243.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 93.0...101.0

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.0
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 69.0...77.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 14.75...14.85
2nd speed rpm : 950
Rack travel in m: 13.9...14.1
3rd speed rpm : 900
Rack travel in m: 14.0...14.2
4th speed rpm : 875
Rack travel in m: 14.15...14.35
5th speed rpm : 800
Rack travel in m: 14.65...14.85

Aneroid/Altitude Compensator Test

1st version

F11

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 14.75...14.85

Measurement

Speed 1/min : 400

1st pressure hPa : 450
Rack travel in m: 12.8...13.0
2nd pressure hPa : 300
Rack travel in m: 11.75...12.05
3rd pressure hPa : -
Rack travel in m: 10.25...10.55

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 950
Del. quantity cm³/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 450
Speed rpm : 400
Del. quantity cm³/ : 164.5...167.5
1000 s: (161.5...170.5)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 107.0...109.0
1000 s: (104.0...112.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.0
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm³ : 6.00
1000 s: (10.0)

Remarks:

:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 8.6.94
 Replaces : 4.94
 Test oil : ISO-4113
 Combination no. : 0 402 648 936
 Injection pump
 Pump designation :
 PE8P120A320LS7840-10
 EP type number : 0 412 628 856
 Governor
 Governor design. : RQ300/950PA1032-14
 Governor no. : 0 421 801 749

Customer-spec. information
 Customer : MERCEDES-BENZ.

Engine : OM442 A

1st version kw : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 : 4-1

Phasing :
 0-45-90-135-180-225-
 : 270-315
 Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 21.1...21.3
 100 s : (20.8...21.6)

Spread cm³ : 0.6
 100 s : (0.9)

2nd speed rpm : 300
 Rack travel in mm : 6.2...6.8
 Del. quantity cm³/ : 1.0...1.6
 100 s : (0.7...1.9)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 750
 Del. quantity : 211.0...213.0
 1000 : (208.0...216.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.45
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 8.80
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 400
Rack travel mm : 12.35...12.45

Measurement

Speed 1/min : 400

1st pressure hPa : 750
Rack travel in m: 13.40...13.50
2nd pressure hPa : 200
Rack travel in m: 11.50...11.70
3rd pressure hPa : -
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 950
Del.quantity cm3/ : 210.0...216.0
1000 s: (207.0...219.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 400
Speed rpm : 400

Del.quantity cm3/ : 156.5...159.5
1000 s: (153.5...162.5)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 136.0...138.0
1000 s: (133.0...141.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.45
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 02.94
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 648 938

Injection pump
 Pump designation :
 PE8P120A320LS7840-10
 EP type number : 0 412 628 856
 Governor
 Governor design. : RQ300/1050PA1030-2
 Governor no. : 0 421 801 652

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kw : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3-
 5-
 ← 1

Phasing :
 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.30 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 13.40...13.50

 Del. quantity cm³/ : 21.1...21.3
 100 s : (20.8...21.6)

 Spread cm³ : 0.6
 100 s : (0.9)

 2nd speed rpm : 300
 Rack travel in mm : 6.2...6.8
 Del. quantity cm³/ : 1.0...1.6
 100 s : (0.7...1.9)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 750
 Del. quantity : 211.0...213.0
 1000 : (208.0...216.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91.0...99.0

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.80
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69.0...77.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:
Speed rpm : 200
Minimum rack travel: 8.80
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.70...12.90
2nd speed rpm : 900
Rack travel in m: 12.95...13.05
3rd speed rpm : 800
Rack travel in m: 13.40...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 400
Pressure hPa : 400
Rack travel mm : 12.35...12.45

Measurement
Speed 1/min : 400

1st pressure hPa : 750
Rack travel in m: 13.40...13.50
2nd pressure hPa : 200
Rack travel in m: 11.50...11.70
3rd pressure hPa : -
Rack travel in m: 11.00...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750
Speed rpm : 1050
Del.quantity cm³/ : 192.0...196.0
1000 s: (189.0...199.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 400
Speed rpm : 400
Del.quantity cm³/ : 156.5...159.5
1000 s: (153.5...162.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 136.0...138.0
1000 s: (133.0...141.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 50.0...70.0
1000 s: (46.0...74.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 c3
 Edition : 13.06.94
 Replaces : 01.02.91
 Test oil : ISO-4113

Combination no. : 0 402 735 803

Injection pump
 Pump designation :
 PES5P120A720/3LS7210
 EP type number : 0 412 725 806
 Governor
 Governor design. :
 RQV325...1000PA960-3

Governor no. : 0 421 815 271

Customer-spec. information
 Customer : MAN

Engine : D2865LF06/LU06

1st version kW : 235.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)

Rack travel in mm : 15.00...16.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60
 & maximum rack tra: 15.0...16.0
 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 26.9...27.1

100 s: (26.6...27.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 5.9...6.3

Del. quantity cm³/ : 4.7...5.3

100 s: (4.4...5.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 9.40...9.60

2nd speed rpm : 325

travel mm : 1.30...1.50

3rd speed rpm : 500

travel mm : 3.20...3.80

4th speed rpm : 900

travel mm : 7.60...8.00

5th speed rpm : 1350

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
Speed rpm : 1110
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 1200
Del.quantity : 269.0...271.0
1000 : (266.0...274.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 293...301

Testing:
1st rack travel in: 12.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 249...257

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 325
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 340...450

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.50...13.60
2nd speed rpm : 1000
Rack travel in m: 13.10...13.30
3rd speed rpm : 650
Rack travel in m: 12.70...12.90
4th speed rpm : 400
Rack travel in m: 11.90...12.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900

Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 170
Rack travel in m: 9.60...9.70
3rd pressure hPa : 600
Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 248.0...254.0
1000 s: (245.0...257.0)
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm3/ : 270.0...276.0
1000 s: (267.0...279.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 47.0...53.0
1000 s: (44.0...56.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7124

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : 03.93
 Test oil : ISO-4113

Combination no. : 0 402 736 834

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1100PA964
 -12K
 Governor no. : 0 421 815 323

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.8

Del.quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40

2nd speed rpm : 450
 travel mm : 3.20...3.60

3rd speed rpm : 900
 travel mm : 5.60...6.00

4th speed rpm : 1200
 travel mm : 8.10...8.30

5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200

Del.quantity : 211.5...213.5
1000 : (208.5...216.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 12.40
Speed rpm : 1245...1275
2nd rack travel in: 4.00
Speed rpm : 1390...1400
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 275
Minimum rack travel: 8.30
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.90...14.00
2nd speed rpm : 650
Rack travel in m: 12.00...12.40
3rd speed rpm : 1200
Rack travel in m: 13.40...13.60
4th speed rpm : 750
Rack travel in m: 12.40...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.60...9.00
2nd pressure hPa : 310

F21

Rack travel in m: 10.10...10.20
3rd pressure hPa : 650
Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 166.0...172.0
1000 s: (163.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 175.0...181.0
1000 s: (172.0...184.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 82.5...86.5
1000 s: (80.5...88.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1245...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del.quantity cm³/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3922471

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70
mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 27.05.94
 Replaces : 08.93
 Test oil : ISO-4113

Combination no. : 0 402 736 835

Injection pump
 Pump designation : PES6P120A12ORS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. :
 RQV350...900PA964-13
 K

Governer no. : 0 421 815 324

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.70...14.80

Del. quantity cm³/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...1.80

2nd speed rpm : 450
 travel mm : 3.00...3.40

3rd speed rpm : 600
 travel mm : 5.20...5.60

4th speed rpm : 1000
 travel mm : 8.40...8.60

5th speed rpm : 1150
 travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 1200
Del. quantity : 242.0...244.0
1000 : (239.0...247.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...123

Testing:
1st rack travel in: 13.30
Speed rpm : 1060...1090
2nd rack travel in: 4.00
Speed rpm : 1210...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...72

Testing:
Speed rpm : 275
Minimum rack travel: 8.10
Speed rpm : 350
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.70...14.80
2nd speed rpm : 650
Rack travel in m: 13.70...14.10
3rd speed rpm : 1000
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement
Speed 1/min : 900

1st pressure hPa : -

F24

Rack travel in m: 9.20...9.60
2nd pressure hPa : 325
Rack travel in m: 10.60...10.70
3rd pressure hPa : 765
Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 219.5...225.5
1000 s: (216.5...228.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del. quantity cm³/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1060...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.70
Del. quantity cm³/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1. # 3922446

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 27.05.94
 Replaces : 16.07.93
 Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1000PA964
 -14K
 Governor no. : 0 421 815 325

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.50...14.60

Del. quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.8

Del. quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00

2nd speed rpm : 450
 travel mm : 3.10...3.50

3rd speed rpm : 600
 travel mm : 5.10...5.50

4th speed rpm : 1000
 travel mm : 8.10...8.30

5th speed rpm : 1200
 travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1200

Del.quantity : 236.0...238.0
1000 : (233.0...241.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 12.90
Speed rpm : 1150...1180
2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...72

Testing:
Speed rpm : 275
Minimum rack travel: 8.10
Speed rpm : 350
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 13.30...13.70
3rd speed rpm : 1100
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 325
Rack travel in m: 10.60...10.70
3rd pressure hPa : 765

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm3/ : 205.0...211.0
1000 s: (202.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1150...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3922427

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 02.94
 Test oil : ISO-4113

Combination no. : 0 402 736 837

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV400...1250PA964
 -15K
 Governor no. : 0 421 815 332

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 90...110

Test nozzle holder assembly : 1 688 901 103

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350

Rack travel in mm : 6.3...6.7

Del.quantity cm³/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00

2nd speed rpm : 450
 travel mm : 3.10...3.50

3rd speed rpm : 600
 travel mm : 5.10...5.50

4th speed rpm : 1000
 travel mm : 8.10...8.30

5th speed rpm : 1200
 travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1200

Del.quantity : 215.5...217.5
1000 : (212.5...220.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...126

Testing:

1st rack travel in: 12.40
Speed rpm : 1150...1180
2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...74

Testing:

Speed rpm : 275
Minimum rack travel: 8.10
Speed rpm : 350
Rack travel in mm : 6.30...6.70

CONSTANT REGULATION

Speed rpm : 325...515

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.80...13.90
2nd speed rpm : 650
Rack travel in m: 13.10...13.50
3rd speed rpm : 1100
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 325
Rack travel in m: 10.60...10.70
3rd pressure hPa : 765

F28

Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 205.0...211.0
1000 s: (202.0...214.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1150...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.70
Del.quantity cm³/ : 22.0...28.0
1000 s: (20.0...30.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C # 3922449

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 9.6.94
 Replaces : 02.94
 Test oil : ISO-4113

Combination no. : 0 402 736 838

Injection pump
 Pump designation : PES6P120A120RS7275
 EP type number : 0 412 726 886
 Governor
 Governor design. : RGV400...1250PA964
 -16K
 Governor no. : 0 421 815 334

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 15.3...15.4

100 s: (14.9...15.7)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.2...2.2)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 500
 travel mm : 2.30...2.70
 3rd speed rpm : 800
 travel mm : 4.80...5.20
 4th speed rpm : 1250
 travel mm : 6.90...7.10
 5th speed rpm : 1500
 travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200

Del.quantity : 152.5...154.5
1000 : (149.5...157.5)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...122

Testing:

1st rack travel in: 12.40
Speed rpm : 1310...1340
2nd rack travel in: 4.00
Speed rpm : 1560...1570
4th rack travel in: 1675
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...77

Testing:

Speed rpm : 300
Minimum rack travel: 7.70
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 325...519

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 800
Rack travel in m: 11.60...12.00
3rd speed rpm : 500
Rack travel in m: 11.20...11.60
4th speed rpm : 900
Rack travel in m: 12.00...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 1250
1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 265

Rack travel in m: 11.10...11.20
3rd pressure hPa : 440
Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 130.5...136.5
1000 s: (127.5...139.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm3/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1310...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm3 : 4.00
1000 s: (8.00)

Remarks:

: C.D.C # 3921918

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 21.01.94
 Test oil : ISO-4113
 Combination no. : 0 402 736 839
 Injection pump
 Pump designation : PES6P120A12ORS7265
 EP type number : 0 412 726 8&2
 Governor
 Governor design. : RQV350...1100PA964
 -17K
 Governor no. : 0 421 815 335

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kw : 167.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.20...13.30
 Del. quantity cm³/ : 19.7...19.9
 100 s: (19.4...20.2)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 6.2...6.6
 Del. quantity cm³/ : 2.0...2.6
 100 s: (1.8...2.8)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40
 2nd speed rpm : 450
 travel mm : 3.20...3.60
 3rd speed rpm : 900
 travel mm : 5.60...6.00
 4th speed rpm : 1200
 travel mm : 8.10...8.30
 5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200

Del.quantity : 197.0...199.0
1000 : (194.0...202.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 109...121

Testing:
1st rack travel in: 11.90
Speed rpm : 1250...1280
2nd rack travel in: 4.00
Speed rpm : 1380...1390
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...76

Testing:
Speed rpm : 275
Minimum rack travel: 7.90
Speed rpm : 350
Rack travel in mm : 6.20...6.60

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.20...13.30
2nd speed rpm : 650
Rack travel in m: 12.20...12.60
3rd speed rpm : 1200
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 255
Rack travel in m: 9.70...9.80
3rd pressure hPa : 520

G05

Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 183.5...189.5
1000 s: (180.5...192.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1100
Del.quantity cm³/ : 85.0...89.0
1000 s: (83.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1250...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...235.0
1000 s: (190.0...240.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.60
Del.quantity cm³/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: C.D.C. # 3922424

Start-of-delivery blocking 5,25° after
start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 21.01.94
 Test oil : ISO-4113

Combination no. : 0 402 736 840

Injection pump
 Pump designation : PES6P120A12ORS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1100PA964
 -18K
 Governor no. : 0 421 815 336

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kw : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 103

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Pack travel in mm : 12.70...12.80

Del. quantity cm³/ : 18.0...18.2

100 s: (17.7...18.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.8

Del. quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

2nd speed rpm : 450

travel mm : 3.20...3.60

3rd speed rpm : 900

travel mm : 5.60...6.00

4th speed rpm : 1200

travel mm : 8.10...8.30

5th speed rpm : 1400

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 180.0...182.0
1000 : (177.0...185.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 110...122

Testing:
1st rack travel in: 11.40
Speed rpm : 1250...1280
2nd rack travel in: 4.00
Speed rpm : 1380...1390
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...73

Testing:
Speed rpm : 275
Minimum rack travel: 7.90
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 650
Rack travel in m: 11.70...12.10
3rd speed rpm : 1200
Rack travel in m: 12.40...12.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.60...9.00
2nd pressure hPa : 255
Rack travel in m: 9.70...9.80
3rd pressure hPa : 520

G07

Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 167.0...173.0
1000 s: (164.0...176.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1100
Del. quantity cm³/ : 85.0...89.0
1000 s: (83.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1250...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...230.0
1000 s: (185.0...235.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del. quantity cm³/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3922426

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 02.94
 Test oil : ISO-4113

Combination no. : 0 402 736 841

Injection pump
 Pump designation : PES6P120A120RS7275
 EP type number : 0 412 726 886
 Governor
 Governor design. : RQV400...1250PA964
 -19K
 Governor no. : 0 421 815 342

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kw : 130.5
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400

Rack travel in mm : 5.9...6.3

Del. quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.30...1.50

2nd speed rpm : 500
 travel mm : 2.30...2.70

3rd speed rpm : 800
 travel mm : 4.80...5.20

4th speed rpm : 1250
 travel mm : 6.90...7.10

5th speed rpm : 1500
 travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200

Del.quantity : 159.5...161.5
1000 : (156.5...164.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 111...123

Testing:

1st rack travel in: 12.40
Speed rpm : 1300...1330
2nd rack travel in: 4.00
Speed rpm : 1560...1570
4th rack travel in: 1675
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...77

Testing:

Speed rpm : 300
Minimum rack travel: 7.40
Speed rpm : 400
Rack travel in mm : 5.90...6.30

CONSTANT REGULATION

Speed rpm : 325...519

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 800
Rack travel in m: 11.70...11.90
3rd speed rpm : 500
Rack travel in m: 11.30...11.70
4th speed rpm : 900
Rack travel in m: 12.00...12.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 260

Rack travel in m: 11.30...11.40
3rd pressure hPa : 430
Rack travel in m: 12.80...13.20

START CUT-OUT

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 135.0...141.0
1000 s: (132.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ : 110.0...114.0
1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1300...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.30
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921920

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 16.07.93
 Test oil : ISO-4113
 Combination no. : 0 402 736 842
 Injection pump
 Pump designation : PES6P120A12ORS72S1
 EP type number : 0 412 726 890
 Governor
 Governor design. : RQV400...1250PA1060
 -1K
 Governor no. : 0 421 815 344

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

 Rack travel in mm : 13.30...13.40

 Del.quantity cm³/ : 15.2...15.4

 100 s: (14.9...15.7)

 Spread cm³ : 0.8

 100 s: (1.2)

 2nd speed rpm : 400.0
 Rack travel in mm : 6.0...6.4
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.3...2.3)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 550
 travel mm : 2.50...2.90
 3rd speed rpm : 800
 travel mm : 4.00...4.40
 4th speed rpm : 1250
 travel mm : 6.90...7.10
 5th speed rpm : 1500
 travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200

Del. quantity : 152.5...154.5
1000 : (149.5...157.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 114...126

Testing:

1st rack travel in: 12.30
Speed rpm : 1310...1340
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...79

Testing:

Speed rpm : 275
Minimum rack travel: 7.80
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.30...13.40
2nd speed rpm : 800
Rack travel in m: 11.80...12.20
3rd speed rpm : 500
Rack travel in m: 11.40...11.80
4th speed rpm : 900
Rack travel in m: 12.20...12.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 265

Rack travel in m: 11.10...11.20
3rd pressure hPa : 440
Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del. quantity cm³/ : 127.5...133.5
1000 s: (124.5...136.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del. quantity cm³/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1310...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del. quantity cm³/ : 15.0...21.0
1000 s: (13.0...23.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3925085

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 16.08.93
 Test oil : ISO-4113
 Combination no. : 0 402 736 843
 Injection pump
 Pump designation : PES6P120A120RS728i
 EP type number : 0 412 726 890
 Governor
 Governor design. :
 RQV400...1250PA1060K
 Governor no. : 0 421 815 343

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 130.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 13.50...13.60
 Del. quantity cm³/ : 15.5...15.7
 100 s: (15.2...16.0)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 400.0
 Rack travel in mm : 6.1...6.5
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.2...2.2)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 550
 travel mm : 2.50...2.90
 3rd speed rpm : 800
 travel mm : 4.00...4.40
 4th speed rpm : 1250
 travel mm : 6.90...7.10
 5th speed rpm : 1500
 travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200

Del. quantity : 155.5...157.5
1000 : (152.5...160.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 111...123

Testing:
1st rack travel in: 12.50
Speed rpm : 1305...1335
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78

Testing:
Speed rpm : 300
Minimum rack travel: 7.70
Speed rpm : 400
Rack travel in mm : 6.10...6.50

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.50...13.60
2nd speed rpm : 800
Rack travel in m: 11.60...11.80
3rd speed rpm : 500
Rack travel in m: 11.20...11.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 260
Rack travel in m: 11.30...11.40
3rd pressure hPa : 430

G15

Rack travel in m: 13.00...13.40

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del. quantity cm³/ : 124.0...130.0
1000 s: (121.5...132.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del. quantity cm³/ : 109.5...113.5
1000 s: (107.5...115.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1305...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.10...6.50
Del. quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks: : C.D.C. # 3925086

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 02.94
 Test oil : ISO-4113
 Combination no. : 0 402 736 844
 Injection pump
 Pump designation : PES6P120A120RS7287
 EP type number : 0 412 726 896
 Governor
 Governor design. : RQV400...1250PA964
 -21K
 Governor no. : 0 421 815 354

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1-5-3-6-2-4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 14.80...14.90
 Del. quantity cm³/ : 19.3...219.5
 100 s: (19.0...19.8)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 400.0
 Rack travel in mm : 6.4...6.8
 Del. quantity cm³/ : 2.0...2.6
 100 s: (1.8...2.8)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 550
 travel mm : 3.10...3.50
 3rd speed rpm : 800
 travel mm : 4.30...4.70
 4th speed rpm : 1250
 travel mm : 7.00...7.20
 5th speed rpm : 1500
 travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1475
 Rack travel in mm : 9.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1200
Del.quantity : 193.5...195.5
1000 : (190.5...198.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 114.0...126.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1300...1330
2nd rack travel in: 4.00
Speed rpm : 1480...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...79

Testing:

Speed rpm : 300
Minimum rack trave: 9.00
Speed rpm : 400
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.80...14.90
2nd speed rpm : 800
Rack travel in m: 13.80...14.20
3rd speed rpm : 1250
Rack travel in m: 14.40...14.60
4th speed rpm : 900
Rack travel in m: 14.00...14.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 355
Rack travel in m: 11.30...11.40
3rd pressure hPa : 645
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version:

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 179.0...185.0
1000 s: (176.0...188.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1300...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.40...6.80
Del.quantity cm³/ : 18.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921925

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 845
 Injection pump
 Pump designation : PES6P120A120RS7286
 EP type number : 0 412 726 894
 Governor
 Governor design. : RQV350...1110PA964
 -20K
 Governor no. : 0 421 815 352

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 224.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 95...115

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 15.20...15.30

Del. quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.8
 Del. quantity cm³/ : 2.1...2.7
 100 s: (1.9...2.9)

Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40

2nd speed rpm : 450
 travel mm : 3.20...3.60

3rd speed rpm : 900
 travel mm : 5.60...6.00

4th speed rpm : 1200
 travel mm : 8.10...8.30

5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200

Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 113.0...125.0

Testing:

1st rack travel in: 13.60
Speed rpm : 1240...1270
2nd rack travel in: 4.00
Speed rpm : 1395...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 65...79

Testing:

Speed rpm : 275
Minimum rack travel: 8.30
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION

Speed rpm : 330...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 15.20...15.30
2nd speed rpm : 750
Rack travel in m: 13.50...13.90
3rd speed rpm : 1200
Rack travel in m: 14.60...14.80
4th speed rpm : 650
Rack travel in m: 13.20...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 15.20...15.30

Measurement

Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.00...9.40
2nd pressure hPa : 335

Rack travel in m: 10.90...11.00
3rd pressure hPa : 715
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 205.0...211.0
1000 s: (202.0...214.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...81.0
1000 s: (75.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1240...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (155.0...205.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del.quantity cm³/ : 21.0...27.0
1000 s: (19.0...29.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3922425

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 02.94
 Test oil : ISO-4113

Combination no. : 0 402 736 846

Injection pump
 Pump designation : PES6P120A120RS7287
 EP type number : 0 412 726 896
 Governor
 Governor design. :
 RQV400...1250PA1081K
 Governor no. : 0 421 815 360

Customer-spec. information
 Customer : C.D.C

Engine : 6BTA-A

1st version kW : 156.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 17.5...17.7
 100 s: (17.2...18.0)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 420
 Rack travel in mm : 5.1...5.5
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.2...2.2)

Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60

2nd speed rpm : 550
 travel mm : 3.10...3.50

3rd speed rpm : 800
 travel mm : 4.30...4.70

4th speed rpm : 1250
 travel mm : 7.00...7.20

5th speed rpm : 1500
 travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200
 Del. quantity : 175.0...177.0
 1000 : (172.0...180.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 12.90
Speed rpm : 1295...1325
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78

Testing:
Speed rpm : 300
Minimum rack travel: 8.90
Speed rpm : 420
Rack travel in mm : 5.10...5.50

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.90...14.00
2nd speed rpm : 800
Rack travel in m: 11.90...12.10
3rd speed rpm : 500
Rack travel in m: 10.70...11.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 9.60...10.00
2nd pressure hPa : 305
Rack travel in m: 10.90...11.00
3rd pressure hPa : 585
Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min : 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 127.0...133.0
1000 s: (124.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ : 93.0...97.0
1000 s: (91.0...99.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 420
Rack travel in mm : 5.10...5.50
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3924903
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 02.94
Test oil : ISO-4113

Combination no. : 0 402 736 847

Injection pump
Pump designation : PES6P120A120RS7287
EP type number : 0 412 726 896
Governor
Governor design. : RQV400...1250PA964
-22K
Governor no. : 0 421 815 366

Customer-spec. information
Customer : C.D.C.

Engine : 6BTA-A

1st version kw : 156.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 90...110

Test nozzle holder
assembly : 1 688 901 103

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
Rack travel in mm : 10.00...13.00
Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 14.30...14.40
Del.quantity cm³/ : 17.7...17.9
100 s: (17.4...18.2)

Spread cm³ : 0.8
100 s: (1.2)

2nd speed rpm : 400
Rack travel in mm : 6.0...6.4
Del.quantity cm³/ : 1.6...2.2
100 s: (1.4...2.4)
Spread cm³ : 0.4
100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 1.40...1.60
2nd speed rpm : 550
travel mm : 3.10...3.50
3rd speed rpm : 800
travel mm : 4.30...4.70
4th speed rpm : 1250
travel mm : 7.00...7.20
5th speed rpm : 1500
travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 1200

Del.quantity : 177.0...179.0
1000 : (174.0...182.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 13.10
Speed rpm : 1300...1330
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78

Testing:
Speed rpm : 300
Minimum rack travel: 8.80
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.30...14.40
2nd speed rpm : 800
Rack travel in m: 13.10...13.50
3rd speed rpm : 1250
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 425
Rack travel in m: 11.40...11.50
3rd pressure hPa : 685

G25

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 159.0...165.0
1000 s: (156.0...168.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ : 99.0...103.0
1000 s: (97.0...105.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1300...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 16.5...22.5
1000 s: (14.5...24.5)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921923

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery blocking 6,25° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : 02.94
 Test oil : ISO-4113
 Combination no. : 0 402 736 848
 Injection pump
 Pump designation : PES6P120A12ORS7314
 EP type number : 0 412 726 901
 Governor
 Governor design. : RQV400...1250PA964
 -24K
 Governor no. : 0 421 815 374

Customer-spec. information
 Customer : CDC

Engine : 6BTA-A

1st version kW : 142.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 14.20...14.30
 Del. quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 420
 Rack travel in mm : 5.6...6.0
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.8...1.8)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 550
 travel mm : 3.10...3.50
 3rd speed rpm : 800
 travel mm : 4.30...4.70
 4th speed rpm : 1250
 travel mm : 7.00...7.20
 5th speed rpm : 1500
 travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200

Del.quantity : 165.5...167.5
1000 : (162.5...170.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 12.80
Speed rpm : 1295...1325
2nd rack travel in: 4.00
Speed rpm : 1465...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78

Testing:
Speed rpm : 300
Minimum rack trave: 9.80
Speed rpm : 420
Rack travel in mm : 5.60...6.00

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.20...14.30
2nd speed rpm : 800
Rack travel in m: 13.00...13.40
3rd speed rpm : 1250
Rack travel in m: 13.80...14.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.20...14.30

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 11.10...11.50
2nd pressure hPa : 375
Rack travel in m: 12.10...12.20
3rd pressure hPa : 500

G27

Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 144.0...150.0
1000 s: (141.0...153.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ : 106.5...110.5
1000 s: (104.5...112.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.50...14.50

LOW IDLE

Speed rpm : 420
Rack travel in mm : 5.60...6.00
Del.quantity cm³/ : 10.0...16.0
1000 s: (8.0...18.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921922

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 11.6.94
Replaces : -
Test oil : ISC-4113

Combination no. : 0 402 736 849

Injection pump
Pump designation :
PES6P120A720/3LS7251
EP type number : 0 412 726 860
Governor
Governor design. : RQV300...1000PA962
-12K
Governor no. : 0 421 815 407

Customer-spec. information
Customer : MAN

Engine : D2866LF09

1st version kW : 398.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

G28

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
: (4.75...4.95)
Rack travel in mm : 15.00...16.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.30(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
Rack travel in mm : 13.90...14.00
Del. quantity cm³/ : 29.3...29.5
100 s : (29.0...29.8)
Spread cm³ : 0.8
100 s : (1.2)

2nd speed rpm : 300
Rack travel in mm : 5.0...5.4
Del. quantity cm³/ : 2.9...3.5
100 s : (2.6...3.8)
Spread cm³ : 0.8
100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.29...1.79
2nd speed rpm : 374
travel mm : 2.31...2.81
3rd speed rpm : 480
travel mm : 3.40...3.90
4th speed rpm : 769
travel mm : 6.70...7.20
5th speed rpm : 1060
travel mm : 10.14...10.64

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1120
Rack travel in mm : 10.50...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 1300
Del.quantity : 293.0...295.0
1000 : (290.0...298.0)
Spread cm³ : 10.00
1000 : (14.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:
1st rack travel in: 12.40
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 248...256

Testing:
Speed rpm : 200
Minimum rack travel: 6.70
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 270...390

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.90...14.00
2nd speed rpm : 1000
Rack travel in m: 13.40...13.60
3rd speed rpm : 750
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1300
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.00...9.20

H01

2nd pressure hPa : 220
Rack travel in m: 9.40...9.5080
3rd pressure hPa : 720
Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 266.0...272.0
1000 s: (263.0...275.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 284.0...290.0
1000 s: (281.0...293.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 168.0...171.0
1000 s: (165.0...173.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.40
Del.quantity cm³/ : 29.0...35.0
1000 s: (26.0...38.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 3-7373

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 851
 Injection pump
 Pump designation : PES6P120A12ORS7332
 EP type number : 0 412 726 909
 Governor
 Governor design. : RQV350...1000PA964
 -24K
 Governor no. : 0 421 815 411
 Customer-spec. information
 Customer : CDC
 Engine : 6CTA-A
 1st version kW : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 086
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 90...110
 Test nozzle holder assembly : 1 688 901 103
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 15.10...15.20
 Del.quantity cm³/ : 23.4...23.6
 100 s: (23.1...23.9)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 350
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 2.4...3.0
 100 s: (2.2...3.2)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00
 2nd speed rpm : 450
 travel mm : 3.10...3.50
 3rd speed rpm : 600
 travel mm : 5.10...5.50
 4th speed rpm : 1000
 travel mm : 8.10...8.30
 5th speed rpm : 1200
 travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1200

Del. quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 13.50
Speed rpm : 1140...1170
2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...75

Testing:
Speed rpm : 275
Minimum rack travel: 8.20
Speed rpm : 350
Rack travel in mm : 6.70...6.90

CONSTANT REGULATION
Speed rpm : 335...515

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 15.10...15.20
2nd speed rpm : 650
Rack travel in m: 13.50...13.90
3rd speed rpm : 1100
Rack travel in m: 14.50...14.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 15.10...15.20

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 370
Rack travel in m: 10.70...10.80
3rd pressure hPa : 825

HO₂

Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 207.5...213.5
1000 s: (204.5...216.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del. quantity cm³/ : 94.0...98.0
1000 s: (92.0...100.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1140...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...200.0
1000 s: (155.0...205.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 24.0...30.0
1000 s: (22.0...32.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: C.D.C. # 3927924

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 852
 Injection pump
 Pump designation : PES6P120A120RS7332
 EP type number : 0 412 726 909
 Governor
 Governor design. : RQV350...900PA964
 -25K
 Governor no. : 0 421 815 418

Customer-spec. information
 Customer : CDC

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 15.20...15.30
 Del. quantity cm³/ : 23.8...24.0
 100 s: (23.5...24.3)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350
 Rack travel in mm : 6.6...6.8
 Del. quantity cm³/ : 2.3...2.9
 100 s: (2.1...3.1)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...1.80
 2nd speed rpm : 450
 travel mm : 3.00...3.40
 3rd speed rpm : 600
 travel mm : 5.20...5.60
 4th speed rpm : 1000
 travel mm : 8.40...8.60
 5th speed rpm : 1150
 travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200

Del. quantity : 238.0...240.0
1000 : (235.0...243.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 113...125

Testing:
1st rack travel in: 13.90
Speed rpm : 1055...1085
2nd rack travel in: 4.00
Speed rpm : 1215...1225
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...75

Testing:
Speed rpm : 275
Minimum rack travel: 8.10
Speed rpm : 350
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 335...515

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 15.20...15.30
2nd speed rpm : 650
Rack travel in m: 14.00...14.40
3rd speed rpm : 1000
Rack travel in m: 14.90...15.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 15.20...15.30

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 370
Rack travel in m: 10.70...10.80
3rd pressure hPa : 825

H05

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 221.0...227.0
1000 s: (218.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del. quantity cm³/ : 94.0...98.0
1000 s: (92.0...100.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1055...1085

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...200.0
1000 s: (155.0...205.0)
Rack travel in mm : 10.60...11.60

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.60...6.80
Del. quantity cm³/ : 23.0...29.0
1000 s: (21.0...31.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: C.D.C. # 3927923

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.6.94
 Replaces : 04.94
 Test oil : ISO-4113

Combination no. : 0 402 746 919

Injection pump
 Pump designation : PES6P120A72OLS7237
 -11
 EP type number : 0 412 726 911
 Governor
 Governor design. : RQ300/1100PA1013-4
 Governor no. : 0 421 801 711

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hA

1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

H06

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6-2-4-1-5-3

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.75...13.85

Del. quantity cm³/ : 20.3...20.5
 100 s : (20.0...20.8)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 300
 Rack travel in mm : 5.60...6.20
 Del. quantity cm³/ : 1.6...2.2
 100 s : (1.3...2.5)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1400
 Del. quantity : 203.0...205.0
 1000 : (200.0...208.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.80
Speed rpm : 1145...1161
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:
Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 355...395

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 600
Rack travel mm : 12.65...12.75

Measurement
Speed 1/min : 500

1st pressure hPa : 950
Rack travel in m: 13.35...13.55
2nd pressure hPa : -
Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 207.0...211.0
1000 s: (204.0...214.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm³ : 8.00
1000 s: (12.0)

H07

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 968
 Injection pump
 Pump designation : PES6P120A720RS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...975PA944
 -16K
 Governor no. : 0 421 815 390

Customer-spec. information
 Customer : MACK

Engine : E7-250A

1st version kW : 180.0
 Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

H08

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 26.9...27.1
 100 s : (26.6...27.4)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.7...5.1
 Del. quantity cm³/ : 3.7...4.3
 100 s : (3.5...4.5)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 950
 travel mm : 7.90...8.10
 4th speed rpm : 1200
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 975
 Aneroid pressure h: 1200
 Del. quantity : 269.5...271.5
 1000 : (266.5...274.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 103...115

Testing:

1st rack travel in: 11.90

Speed rpm : 1015...1025

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 56...68

Testing:

Speed rpm : 275

Minimum rack travel: 6.00

Speed rpm : 340

Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 12.90...13.00

2nd speed rpm : 600

Rack travel in m: 12.50...12.70

3rd speed rpm : 500

Rack travel in m: 11.60...12.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 975

Pressure hPa : 1200

Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 975

1st pressure hPa : -

Rack travel in m: 8.90...9.30

2nd pressure hPa : 330

Rack travel in m: 9.70...9.80

3rd pressure hPa : 590

Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 250 (255)

HD9

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600

Del.quantity cm3/ : 302.0...308.0

1000 s: (299.0...311.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1200

Speed rpm : 875

Del.quantity cm3/ : 199.0...201.0 *

1000 s: (150.0...172.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm3/ : 189.0...193.0

1000 s: (187.0...195.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.70...5.10

Del.quantity cm3/ : 37.0...43.0

1000 s: (35.0...45.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P6

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 969

Injection pump
 Pump designation : PES6P120A720RS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...875PA944
 -17K
 Governor no. : 0 421 815 391

Customer-spec. information
 Customer : MACK

Engine : EM7-250

1st version kw : 187.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

H10

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 26.8...27.0
 100 s : (26.5...27.3)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.6...4.8
 Del. quantity cm³/ : 3.1...3.7
 100 s : (2.9...3.9)

Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 3.30...3.70
 3rd speed rpm : 700
 travel mm : 7.90...8.10
 4th speed rpm : 900
 travel mm : 9.40...9.60
 5th speed rpm : 1050
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del. quantity : 268.5...270.5
 1000 : (265.5...273.5)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 11.40
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 1035...1065
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 12.40...12.50
2nd speed rpm : 510
Rack travel in m: 13.10...13.30
3rd speed rpm : 400
Rack travel in m: 12.00...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 285
Rack travel in m: 9.90...10.00
3rd pressure hPa : 570
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm3/ : 342.0...348.0
1000 s : (339.0...351.0)
Spread cm3 : 8.00
1000 s : (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 181.0...185.0
1000 s : (179.0...187.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...210.0
1000 s : (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 31.0...37.0
1000 s : (29.0...39.0)
Spread cm3 : 8.00
1000 s : (12.00)

Remarks:

: MACK # 313GC5212-P2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 970

Injection pump
 Pump designation : PES6P120A720RS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...875PA944
 -17K
 Governor no. : 0 421 815 392

Customer-spec. information
 Customer : MACK

Engine : EM7-275

1st version kW : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 29.2...29.4
 100 s : (28.9...29.7)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm³/ : 3.7...4.3
 100 s : (3.5...4.5)

Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 3.30...3.70
 3rd speed rpm : 700
 travel mm : 7.90...8.30
 4th speed rpm : 900
 travel mm : 9.40...9.60
 5th speed rpm : 1050
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h : 1200
 Del. quantity : 292.5...294.5
 1000 : (289.5...297.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 12.40
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...71

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 330...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 13.40...13.50
2nd speed rpm : 510
Rack travel in m: 14.10...14.30
3rd speed rpm : 600
Rack travel in m: 14.20...14.40
4th speed rpm : 450
Rack travel in m: 13.20...13.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 310
Rack travel in m: 10.10...10.20
3rd pressure hPa : 635

Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 381.0...387.0
1000 s: (378.0...390.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 183.0...187.0
1000 s: (181.0...189.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MACK # 313GC5212-P4

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 746 971

 Injection pump
 Pump designation : PES6P120A720RS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...975PA944
 -19K
 Governor no. : 0 421 815 393

Customer-spec. information
 Customer : MACK

Engine : E7-300A

1st version kW : 224.0
 Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 27.4...27.6

100 s : (27.1...27.9)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 340.0

Rack travel in mm : 4.7...5.1

Del. quantity cm³/ : 2.8...3.4

100 s : (2.6...3.6)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.40...1.60

2nd speed rpm : 450
travel mm : 2.70...3.30

3rd speed rpm : 950
travel mm : 7.90...8.10

4th speed rpm : 1200
travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h: 1200

Del. quantity : 274.5...276.5

1000 : (271.5...279.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 110...122

Testing:

1st rack travel in: 12.00

Speed rpm : 1015...1025

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 56...68

Testing:

Speed rpm : 275

Minimum rack trave: 6.00

Speed rpm : 340

Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 13.00...13.10

2nd speed rpm : 600

Rack travel in m: 12.20...12.40

3rd speed rpm : 500

Rack travel in m: 11.20...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 975

Pressure hPa : 1200

Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 975

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 325

Rack travel in m: 9.40...9.50

3rd pressure hPa : 640

Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 250 (255)

H15

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600

Del.quantity cm³/ : 285.5...291.5

1000 s: (282.5...294.5)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400

Del.quantity cm³/ : 169.0...173.0

1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.70...5.10

Del.quantity cm³/ : 28.5...34.5

1000 s: (26.5...36.5)

Spread cm³ : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 4.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 972
 Injection pump
 Pump designation : PES6P120A72ORS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...875PA944
 -20K
 Governor no. : 0 421 815 394

Customer-spec. information
 Customer : MACK

Engine : EM7-300

1st version kW : 224.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875
 Rack travel in mm : 14.00...14.10
 Del. quantity cm3/ : 30.6...30.8
 100 s : (30.3...31.1)
 Spread cm3 : 0.5
 100 s : (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.7...4.9
 Del. quantity cm3/ : 3.7...4.3
 100 s : (3.5...4.5)
 Spread cm3 : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 3.30...3.70
 3rd speed rpm : 700
 travel mm : 7.90...8.30
 4th speed rpm : 900
 travel mm : 9.40...9.60
 5th speed rpm : 1050
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Aneroid pressure h: 1200
 Del. quantity : 306.5...308.5
 1000 : (303.5...311.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:

1st rack travel in: 13.00
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...71

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 330...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 14.00...14.10
2nd speed rpm : 510
Rack travel in m: 14.60...14.80
3rd speed rpm : 575
Rack travel in m: 14.60...14.80
4th speed rpm : 450
Rack travel in m: 13.90...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.80...9.20
2nd pressure hPa : 370
Rack travel in m: 10.30...10.40
3rd pressure hPa : 760

H17

Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 396.0...401.0
1000 s: (392.0...404.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 185.5...189.5
1000 s: (183.5...191.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK #
313GC5212-P10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 6.6.94
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 746 973

 Injection pump
 Pump designation : PES6P120A720RS7321
 EP type number : 0 412 726 906
 Governor
 Governor design. : RQV325...900PA944
 -21K
 Governor no. : 0 421 815 395

Customer-spec. information
 Customer : MACK

Engine : E7-350

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 084

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance ± ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

 Rack travel in mm : 14.50...14.60

 Del. quantity cm³/ : 33.5...33.7
 100 s : (33.2...34.0)

 Spread cm³ : 0.5

 100 s : (0.9)

2nd speed rpm : 340.0
 Rack travel in mm : 4.6...5.0
 Del. quantity cm³/ : 2.8...3.4
 100 s : (2.6...3.6)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 2.80...3.20
 3rd speed rpm : 700
 travel mm : 6.00...6.40
 4th speed rpm : 900
 travel mm : 8.50...8.70
 5th speed rpm : 1050
 travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h : 1200
 Del. quantity : 335.5...337.5
 1000 : (332.5...340.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 110...122

Testing:
1st rack travel in: 13.50
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 58...70

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 340
Rack travel in mm : 4.60...5.00

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.50...14.60
2nd speed rpm : 625
Rack travel in m: 13.80...14.00
3rd speed rpm : 675
Rack travel in m: 13.70...14.10
4th speed rpm : 500
Rack travel in m: 11.90...12.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 400
Rack travel in m: 9.80...9.90
3rd pressure hPa : 775

H19

Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 625
Del.quantity cm³/ : 351.0...357.0
1000 s: (348.0...360.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 169.0...173.0
1000 s: (167.0...173.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340
Rack travel in mm : 4.60...5.00
Del.quantity cm³/ : 28.5...34.5
1000 s: (26.5...36.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: MACK #
313GC5212-P12

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 6.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 983
 Injection pump
 Pump designation : PES6P120A32ORS7328
 EP type number : 0 412 726 908
 Governor
 Governor design. :
 RQV350...1250PA1137K
 Governor no. : 0 421 815 405

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 157.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

H2O

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

 Rack travel in mm : 12.70...12.80

 Del. quantity cm³/ : 16.0...16.2
 100 s : (15.7...16.5)

 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 1.2...1.8
 100 s : (1.0...2.0)
 Spread cm³ : 0.5
 100 s : (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 350
 travel mm : 1.90...2.10
 2nd speed rpm : 500
 travel mm : 4.10...4.50
 3rd speed rpm : 850
 travel mm : 7.00...7.40
 4th speed rpm : 1250
 travel mm : 9.50...9.70
 5th speed rpm : 1450
 travel mm : 11.00...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h : 1500
 Del. quantity : 160.5...162.5
 1000 : (157.5...165.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...128

Testing:
1st rack travel in: 11.70
Speed rpm : 1295...1325
2nd rack travel in: 4.00
Speed rpm : 1450...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...86

Testing:
Speed rpm : 275
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.70...12.80
2nd speed rpm : 850
Rack travel in m: 12.00...12.20
3rd speed rpm : 650
Rack travel in m: 11.30...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1500
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.00...10.40
2nd pressure hPa : 290
Rack travel in m: 10.80...10.90
3rd pressure hPa : 710
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 850
Del.quantity cm³/ : 152.0...158.0
1000 s: (149.0...161.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ : 102.0...106.0
1000 s: (100.0...108.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack travel: 11.70
Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...150.0
1000 s: (100.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 12.5...18.5
1000 s: (10.5...20.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
#1823107C91 : NAVISTAR

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER
 Edition : 07.06.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 236 005

Injection pump
 Pump designation :
 PES6MW100/320/3RS151

8-1
 EP type number : 0 413 206 018
 Governor

Governor design. :
 RQV325...1300Mw133-1

K
 Governor no. : 0 420 083 984

Customer-spec. information
 Customer : PER

Engine : 180 TI

1st version kW : 134.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

H22

Prestroke mm : 4.95...5.05
 Rack travel in mm : 12.0...14.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.6...14.7

Del.quantity cm³/ : 14.0...14.2

100 s: (13.7...14.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.1...2.5

100 s: (1.85...2.75)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.45...1.95

2nd speed rpm : 361
 travel mm : 2.09...2.59

3rd speed rpm : 500
 travel mm : 3.67...4.17

4th speed rpm : 881
 travel mm : 6.21...6.71

5th speed rpm : 1355
 travel mm : 9.98...10.48

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del. quantity : 140.0...142.0
1000 : (137.0...145.0)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 116...124

Testing:

1st rack travel in: 13.6
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.0...1.0

LOW IDLE 1

Control Lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 8.0
Speed rpm : 325
Rack travel in mm : 5.7...5.9

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 14.6...14.7
2nd speed rpm : 800
Rack travel in m: 13.25...13.45
3rd speed rpm : 500
Rack travel in m: 11.35...11.55
4th speed rpm : 1000
Rack travel in m: 14.1...14.4
5th speed rpm : 700
Rack travel in m: 12.55...12.85

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 900
Rack travel mm : 14.3...14.4

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.1...9.3

H23

2nd pressure hPa : 250
Rack travel in m: 10.25...10.35
3rd pressure hPa : 400
Rack travel in m: 13.05...13.35

START CUT-OUT

Speed 1/min : 240 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del. quantity cm³/ : 138.0...142.0
1000 s: (135.0...145.0)
Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: 900
Speed rpm : 500
Del. quantity cm³/ : 116.0...120.0
1000 s: (113.0...123.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 68.0...70.0
1000 s: (66.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.6
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...92.0
1000 s: (75.0...95.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.7...5.9
Del. quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Start-of-delivery blocking 46.5°
before start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 04.05.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 244 033

Injection pump
Pump designation :
PES4MW100/720RS1519-

EP type number : 2
: 0 413 204 017
Governor
Governor design. :
RQV300...1300MW132-1
Governor no. : 0 420 083 292

Cust. part no. : 0240748202

Customer-spec. information
Customer : MB

Engine : OM364LA

1st version kw : 103.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 688 901 101

Opening
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

H24

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 21.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.85...13.95

Del.quantity cm³/ : 12.5...12.7

100 s: (12.2...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 3.8...4.0
Del.quantity cm³/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.66...1.16

2nd speed rpm : 629
travel mm : 2.9...3.4

3rd speed rpm : 820
travel mm : 3.84...4.34

4th speed rpm : 1150
travel mm : 5.7...6.2

5th speed rpm : 1354
travel mm : 7.52...8.02

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1400

Del. quantity : 125.0...127.0
1000 : (122.0...130.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 12.9
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75

Testing:

Speed rpm : 200
Minimum rack travel: 4.50
Speed rpm : 300
Rack travel in mm : 3.8...4.0

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 13.85...13.95

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.0...11.2
2nd pressure hPa : 350
Rack travel in m: 11.5...11.7
3rd pressure hPa : 600
Rack travel in m: 13.0...13.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 750

Del. quantity cm3/ : 122.0...126.0
1000 s: (119.0...129.0)
Spread cm3 : 6.00
1000 s: (9.0)

Aneroid pressure h: 1400
Speed rpm : 600
Del. quantity cm3/ : 124.0...128.0
1000 s: (121.0...131.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 135.0...145.0
1000 s: (137.0...148.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.8...4.0
Del. quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 07.06.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump
 Pump designation :
 PES6MM100/72ORS1515-

EP type number : 0 413 206 021
 Governor

Governor design. :
 RQV300...1300MW125-4
 Governor no. : 0 420 083 284

Cust. part no. : 0220745902

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

H26

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 3.45...3.75
 Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.15...1.65

2nd speed rpm : 363
 travel mm : 1.8...2.3

3rd speed rpm : 500
 travel mm : 2.74...3.24

4th speed rpm : 1354
 travel mm : 8.43...8.93

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del. quantity : 99.0...101.0
 1000 : (97.0...103.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 10.2
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.6

Testing:
Speed rpm : 200
Minimum rack travel: 4.50
Speed rpm : 300
Rack travel in mm : 3.45...3.75

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.2...11.3
2nd speed rpm : 750
Rack travel in m: 11.15...11.35

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.2...11.3

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.0...8.2
2nd pressure hPa : 300
Rack travel in m: 8.7...8.9
3rd pressure hPa : 500
Rack travel in m: 10.1...10.3

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 90.5...93.5
1000 s: (88.0...96.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.2
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.45...3.75
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 09.06.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 246 032

Injection pump
 Pump designation :
 PES6MM100/72ORS1515-

EP type number : 0 413 206 021
 Governor
 Governor design. :
 RQV300...1300MM125-5
 Governor no. : 0 420 083 285

Cust. part no. : 0220746002

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

H28

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.7...3.9

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.2...1.6

2nd speed rpm : 500

travel mm : 2.7...3.3

3rd speed rpm : 880

travel mm : 4.9...5.1

4th speed rpm : 1350

travel mm : 8.6...9.0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1100

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.3
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 58...66
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.8

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.7...3.9

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.3...12.4
2nd speed rpm : 750
Rack travel in m: 12.25...12.45

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1100
Rack travel mm : 12.3...12.4

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.35...8.55
2nd pressure hPa : 250
Rack travel in m: 9.1...9.3
3rd pressure hPa : 500
Rack travel in m: 10.8...11.0

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm3/ : 105.0...108.0
1000 s: (102.5...110.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.3
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.7...3.9
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.04.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 246 035

Injection pump
 Pump designation :
 PES6MW100/72ORS1517-

EP type number : 3
 : 0 413 206 020
 Governor
 Governor design. :
 RQV300...1300MW132-2
 Governor no. : 0 420 083 293

Cust. part no. : 0240744202

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

J02

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.95...12.05

Del. quantity cm³/ : 10.1...10.3

100 s : (9.9...10.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.7...3.9

Del. quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.77...1.27

2nd speed rpm : 490
 travel mm : 2.0...2.5

3rd speed rpm : 710
 travel mm : 2.78...3.28

4th speed rpm : 1100
 travel mm : 4.51...5.01

5th speed rpm : 1353
 travel mm : 6.45...6.95

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 1000

Del. quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.0
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 300

Testing:
Speed rpm : 200
Minimum rack trave: 4.50
Speed rpm : 300
Rack travel in mm : 3.7...3.9

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.95...12.05

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.7...9.9
2nd pressure hPa : 150
Rack travel in m: 10.25...10.45
3rd pressure hPa : 300
Rack travel in m: 11.25...11.45

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 91.5...94.5
1000 s: (89.0...97.0)

Spread cm3 : 5.50
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 93.5...96.5
1000 s: (91.0...99.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 52.0...54.0
1000 s: (50.0...56.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.0
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.7...3.9
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.05.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 274 005

Injection pump
 Pump designation :
 PES6Mw100/72ORS1519-

EP type number : 2
 : 0 413 204 017
 Governor
 Governor design. :
 RSV350...1200MwOA356
 Governor no. : 0 420 085 231

Cust. part no. : 0250740802

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364LA

1st version kW : 103.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

J04

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 G-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 13.75...13.85

 Del. quantity cm³/ : 12.4...12.6

 100 s : (12.1...12.9)

 Spread cm³ : 0.4

 100 s : (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 3.8...4.0
 Del. quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.3...0.7

Governor spring pre-tension
 Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1500
 Del. quantity : 127.0...129.0
 1000 : (124.0...132.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 92...100

Setting point:

Speed rpm : 800
Rack travel in mm : 0.5

Testing:

1st rack travel in: 12.8
Speed rpm : 1240...1250
4th rack travel in: 1400
Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 13.75...13.85
2nd speed rpm : 750
Rack travel in m: 13.7...13.9

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.7...13.9

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.4...10.6
2nd pressure hPa : 450
Rack travel in m: 11.05...11.25
3rd pressure hPa : 700
Rack travel in m: 12.6...12.8

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 750

Del.quantity cm³/ : 129.0...133.0
1000 s: (126.0...136.0)
Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.8
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.8...4.0
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.05.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 274 006

Injection pump
 Pump designation :
 PES6MW100/72ORS1519-

3
 EP type number : 0 413 204 018

Governor
 Governor design. :
 RSV350...1200MWOA356

-1
 Governor no. : 0 420 085 232

Cust. part no. : 0250740702

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364LA

1st version kW : 77.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.95...12.05

Del.quantity cm³/ : 10.1...10.3

100 s : (9.9...10.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 3.8...4.0

Del.quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...0.7

Governor spring pre-tension

Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever
position degrees: 92...100

Setting point:
Speed rpm : 800
Rack travel in mm : 0.5

Testing:
1st rack travel in: 11.0
Speed rpm : 1240...1250
4th rack travel in: 1400
Speed rpm : 0.3...1.7

LOW IDLE 1
Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.95...12.05
2nd speed rpm : 750
Rack travel in m: 11.9...12.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 11.9...12.1

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.7...10.9
2nd pressure hPa : 450
Rack travel in m: 11.05...11.25

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 750

Del.quantity cm3/ : 93.5...96.5
1000 s: (91.0...99.0)
Spread cm3 : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...79.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.0
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...100.0
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.8...4.0
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 09.05.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 276 005

Injection pump
Pump designation :
PES6MW100/72ORS1517-

EP type number : 0 413 206 020
Governor
Governor design. :
RSV350...1200MWOA355
Governor no. : 0 420 085 228

Cust. part no. : 0250740102

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kW : 100.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 688 901 101

Opening
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

J08

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 21.00...0.00
Firing order : 1- 5- 3- 6- 2-
4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.0...11.1

Del. quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 2.9...3.1

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...0.7

Governor spring pre-tension

Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1000

Del. quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 800
Rack travel in mm : 0.5

Testing:

1st rack travel in: 10.0
Speed rpm : 1240...1245
2nd rack travel in: 4.0
Speed rpm : 1300...1307
4th rack travel in: 1400
Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 2.9...3.1

SET IDLE AUXILIARY SPRING

Speed rpm : 390
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.0...11.1
2nd speed rpm : 750
Rack travel in m: 10.95...11.15

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.95...11.15

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.9...10.1
2nd pressure hPa : 300
Rack travel in m: 10.4...10.6
3rd pressure hPa : 380
Rack travel in m: 10.8...11.0

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 87.5...90.5
1000 s: (85.0...93.0)
Spread cm3 : 5.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 68.0...70.0
1000 s: (66.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.0
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 2.9...3.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 07.04.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 276 006

Injection pump
 Pump designation :
 PES6MW100/72ORS1517-

EP type number : 3
 : 0 413 206 020

Governor
 Governor design. :
 RSV350...1200MWA355

Governer no. : -1
 : 0 420 085 229

Cust. part no. : 0250740202

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kw : 120.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness : 8.00x2.50x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.4...11.5

Del. quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 3.2...3.4

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...0.7

Governor spring pre-tension

Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1000

Del. quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 92...100

Setting point:
Speed rpm : 800
Rack travel in mm : 0.5

Testing:
1st rack travel in: 10.4
Speed rpm : 1240...1245
4th rack travel in: 1400
Speed rpm : 0.3...1.7

LOW IDLE 1
Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 3.2...3.4

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.4...11.5
2nd speed rpm : 750
Rack travel in m: 11.35...11.55

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.35...11.55

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.55...9.75
2nd pressure hPa : 350
Rack travel in m: 9.9...10.1
3rd pressure hPa : 530
Rack travel in m: 10.9...11.1

FUEL DELIVERY CHARACTERISTICS

1st version

J11

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 97.5...101.5
1000 s: (95.0...103.0)
Spread cm3 : 5.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.4
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...100.0
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.2...3.4
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.05.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 276 007

Injection pump
 Pump designation :
 PES6MW100/72ORS1517-

EP type number : 3
 : 0 413 206 020

Governor
 Governor design. :
 RSV350...1200MWOA355

Governer no. : -2
 : 0 420 085 230

Cust. part no. : 0250740302

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 140.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.95...13.05

Del. quantity cm³/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 3.2...3.4

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...0.7

Governor spring pre-tension

Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1000

Del. quantity : 117.0...119.0

1000 : (115.0...121.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 92...100

Setting point:
Speed rpm : 800
Rack travel in mm : 0.5

Testing:
1st rack travel in: 12.0
Speed rpm : 1240...1245
4th rack travel in: 1400
Speed rpm : 0.3...1.7

LOW IDLE 1
Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 3.2...3.4

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.95...13.05
2nd speed rpm : 750
Rack travel in m: 12.9...13.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.9...13.1

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.55...9.75
2nd pressure hPa : 350
Rack travel in m: 9.9...10.1

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750

Del.quantity cm³/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm³ : 5.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.0
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.2...3.4
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.05.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 276 009

Injection pump
 Pump designation :
 PES6MW100/720RS1517-

EP type number : 2
 : 0 413 206 019
 Governor
 Governor design. :
 RSV350...1200MWA357
 Governor no. : 0 420 085 233

Cust. part no. : 0250740402

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kw : 155.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.0...14.1

Del. quantity cm³/ : 12.7...12.9
 100 s : (12.4...13.2)

Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 3.8...4.0
 Del. quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.3...0.7

Governor spring pre-tension
 Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1500
 Del. quantity : 127.0...129.0
 1000 : (124.0...132.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 104...112

Setting point:
Speed rpm : 800
Rack travel in mm : 0.5

Testing:
1st rack travel in: 13.0
Speed rpm : 1240...1245
2nd rack travel in: 4.0
Speed rpm : 1366...1370
4th rack travel in: 1450
Speed rpm : 0.3...1.7

LOW IDLE 1
Control Lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 3.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.0...14.1
2nd speed rpm : 750
Rack travel in m: 13.95...14.15

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.95...14.15

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.45...8.65
2nd pressure hPa : 350
Rack travel in m: 10.4...10.6
3rd pressure hPa : 750
Rack travel in m: 12.9...13.1

FUEL DELIVERY CHARACTERISTICS

1st version

J15

Aneroid pressure h: 1500
Speed rpm : 750
Del.quantity cm3/ : 125.0...129.0
1000 s: (122.0...132.0)
Spread cm3 : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 42.0...44.0
1000 s: (40.0...46.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.0
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.8...4.0
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 302
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. :
 RQV300...1300MW50-24
 Governor no. : 0 420 083 270

Cust. part no. : 0220745202

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kw : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.9...11.0

Del. quantity cm³/ : 8.8...9.0

100 s : (8.6...9.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del. quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.4...10.0

2nd speed rpm : 1350

travel mm : 8.5...8.7

3rd speed rpm : 500

travel mm : 2.7...3.3

4th speed rpm : 300

travel mm : 1.2...1.6

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 9.95
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1500
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:
Speed rpm : 200
Minimum rack travel: 8.0
Speed rpm : 300
Rack travel in mm : 6.1...6.3

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.9...11.0
2nd speed rpm : 750
Rack travel in m: 11.5...11.6
3rd speed rpm : 1100
Rack travel in m: 11.1...11.3

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.5...11.6

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.8...9.9
2nd pressure hPa : 200
Rack travel in m: 10.2...10.3
3rd pressure hPa : 300
Rack travel in m: 11.0...11.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 84.5...87.5
1000 s: (82.0...90.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.95
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.1...6.3
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 302
 Injection pump
 Pump designation : PESSMW10G/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. :
 RGV300...1300MW50-24
 Governor no. : 0 420 083 270

Cust. part no. : 0220745202

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 10.9...11.0
 Del. quantity cm³/ : 8.8...9.0
 100 s : (8.6...9.2)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.1...6.3
 Del. quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.4...10.0
 2nd speed rpm : 1350
 travel mm : 8.5...8.7
 3rd speed rpm : 500
 travel mm : 2.7...3.3
 4th speed rpm : 300
 travel mm : 1.2...1.6

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 88.0...90.0
 1000 : (86.0...92.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 9.95
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1500
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:
Speed rpm : 200
Minimum rack travel: 8.0
Speed rpm : 300
Rack travel in mm : 6.1...6.3

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.9...11.0
2nd speed rpm : 750
Rack travel in m: 11.5...11.6
3rd speed rpm : 1100
Rack travel in m: 11.1...11.3

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.5...11.6

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.8...9.9
2nd pressure hPa : 200
Rack travel in m: 10.2...10.3
3rd pressure hPa : 300
Rack travel in m: 11.0...11.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 84.5...87.5
1000 s: (82.0...90.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.95
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.1...6.3
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 303
 Injection pump
 Pump designation : PES6MM100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQV300...1300MW50-24

Governer no. : 0 420 083 270

Cust. part no. :

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0

Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.9...11.0

Del.quantity cm³/ : 8.8...9.0

100 s : (8.6...9.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del.quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.4...10.0

2nd speed rpm : 1350

travel mm : 8.5...8.7

3rd speed rpm : 500

travel mm : 2.7...3.3

4th speed rpm : 300

travel mm : 1.2...1.6

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 9.95
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1500
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:
Speed rpm : 200
Minimum rack travel: 8.0
Speed rpm : 300
Rack travel in mm : 6.1...6.3

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.9...11.0
2nd speed rpm : 750
Rack travel in m: 11.5...11.6
3rd speed rpm : 1100
Rack travel in m: 11.1...11.3

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.5...11.6

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.8...9.9
2nd pressure hPa : 200
Rack travel in m: 10.2...10.3
3rd pressure hPa : 300
Rack travel in m: 11.0...11.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 84.5...87.5
1000 s: (82.0...90.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.95
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.1...6.3
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.04.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 303

Injection pump
 Pump designation :
 PES6MW100/72ORS1131-
 1

EP type number : 0 413 406 165
 Governor
 Governor design. :
 RQV300...1300MW50-25
 Governor no. : 0 420 083 271

Cust. part no. : 0220745302

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kw : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.9...13.0

Del. quantity cm³/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.4...10.0

2nd speed rpm : 1350
 travel mm : 8.5...8.7

3rd speed rpm : 500
 travel mm : 2.7...3.3

4th speed rpm : 300
 travel mm : 1.2...1.6

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 95.0...97.0
1000 : (93.0...99.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 11.95
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 8.0
Speed rpm : 300
Rack travel in mm : 6.4...6.6

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.9...13.0
2nd speed rpm : 750
Rack travel in m: 12.85...13.05
3rd speed rpm : 500
Rack travel in m: 10.5...10.6

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.9...13.0

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.5...10.6
2nd pressure hPa : 200
Rack travel in m: 11.2...11.3
3rd pressure hPa : 350
Rack travel in m: 12.4...12.7

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 84.0...88.0
1000 s: (82.0...90.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.95
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.4...6.6
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 28.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 309
 Injection pump
 Pump designation : PES6MW100/720RS1227
 EP type number : 0 413 406 215
 Governor
 Governor design. : RGV325...1300MW126
 Governor no. : 0 420 083 279

Cust. part no. : 1249951

Customer-spec. information
 Customer : DAF

Engine : NS156L

1st version kw : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 13.0...13.1
 Del. quantity cm³/ : 11.0...11.2
 100 s : (10.8...11.4)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 4.4...4.6
 Del. quantity cm³/ : 0.7...1.1
 100 s : (0.45...1.35)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.4...8.8
 2nd speed rpm : 875
 travel mm : 4.9...5.1
 3rd speed rpm : 500
 travel mm : 2.7...3.3
 4th speed rpm : 325
 travel mm : 1.5...1.9

GUIDE SLEEVE POSITION

Speed rpm : 1350
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del. quantity : 110.0...112.0
 1000 : (109.0...114.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 12.05
Speed rpm : 1324...1340
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1
Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:
Speed rpm : 225
Minimum rack travel: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.0...13.1
2nd speed rpm : 1300
Rack travel in m: 12.95...13.15
3rd speed rpm : 600
Rack travel in m: 10.0...10.2

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.0...13.1

Measurement
Speed 1/min : 600

1st pressure hPa : 390
Rack travel in m: 12.2...12.3
2nd pressure hPa : 190
Rack travel in m: 10.9...11.1
3rd pressure hPa : -
Rack travel in m: 10.0...10.2

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000

Speed rpm : 1300
Del.quantity cm3/ : 105.5...108.5
1000 s: (103.0...110.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 63.0...65.0
1000 s: (62.0...67.0)

BREAKAWAY

1st version
1st rack travel less than
full load rack tr: 12.05
Speed rpm : 1324...1340

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 31.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 309
 Injection pump
 Pump designation : PES6MW100/720RS1227
 EP type number : 0 413 406 215
 Governor
 Governor design. : RQV325...1300MW126
 Governor no. : 0 420 083 279

Cust. part no. : 1249951/5

Customer-spec. information
 Customer : DAF

Engine : NS156L

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm³/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 0.7...1.1

100 s: (0.45...1.35)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.42...1.92

2nd speed rpm : 363
 travel mm : 1.8...2.3

3rd speed rpm : 490
 travel mm : 2.68...3.18

4th speed rpm : 877
 travel mm : 4.75...5.25

5th speed rpm : 1345
 travel mm : 8.33...8.83

GUIDE SLEEVE POSITION

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 110.0...112.0

1000 : (109.0...114.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position: degrees: 119...127

Testing:
1st rack travel in: 12.05
Speed rpm : 1324...1340
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:
Speed rpm : 225
Minimum rack travel: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.0...13.1
2nd speed rpm : 1300
Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.0...13.1

Measurement

Speed 1/min : 600
1st pressure hPa : 390
Rack travel in m: 12.2...12.3
2nd pressure hPa : 190
Rack travel in m: 10.9...11.1
3rd pressure hPa : -
Rack travel in m: 10.0...10.2

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000

Speed rpm : 1300
Del. quantity cm³/ : 105.5...108.5
1000 s: (103.0...110.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 63.0...65.0
1000 s: (62.0...67.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.05
Speed rpm : 1324...1340

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del. quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 28.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 310

Injection pump
 Pump designation :
 PES6MW100/720RS1227Z
 EP type number : 0 413 406 215
 Governor
 Governor design. : RQV325...1300MW126
 Governor no. : 0 420 083 279

Cust. part no. : 1249952

Customer-spec. information
 Customer : DAF

Engine : NS133L

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.7...11.8

Del.quantity cm³/ : 9.25...9.45

100 s: (9.15...9.65)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 0.7...1.1

100 s: (0.45...1.35)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.4...8.8

2nd speed rpm : 875

travel mm : 4.9...5.1

3rd speed rpm : 500

travel mm : 2.7...3.3

4th speed rpm : 325

travel mm : 1.5...1.9

GUIDE SLEEVE POSITION

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 92.5...94.5

1000 : (91.5...96.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 118...126

Testing:
1st rack travel in: 10.75
Speed rpm : 1324...1340
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1
Control Lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:
Speed rpm : 225
Minimum rack trave: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.7...11.8
2nd speed rpm : 1300
Rack travel in m: 11.65...11.85
3rd speed rpm : 600
Rack travel in m: 9.8...10.0

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.7...11.8

Measurement
Speed 1/min : 600

1st pressure hPa : 290
Rack travel in m: 11.2...11.3
2nd pressure hPa : 160
Rack travel in m: 10.3...10.5
3rd pressure hPa : -
Rack travel in m: 9.8...10.0

FUEL DELIVERY CHARACTERISTICS

1st version

K01

Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 89.5...92.5
1000 s: (87.0...95.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.75
Speed rpm : 1324...1340

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 31.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 310
 Injection pump
 Pump designation :
 PES6MW100/72ORS1227Z
 EP type number : 0 413 406 217
 Governor
 Governor design. : RQV325...1300MW126
 Governor no. : 0 420 083 279

Cust. part no. : 1249952/3

Customer-spec. information
 Customer : DAF

Engine : NS133L

1st version kw : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 11.7...11.8

 Del. quantity cm³/ : 9.25...9.45
 100 s: (9.15...9.65)

 Spread cm³ : 0.3

 100 s: (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 4.4...4.6
 Del. quantity cm³/ : 0.7...1.1
 100 s: (0.45...1.35)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.42...1.92
 2nd speed rpm : 363
 travel mm : 1.8...2.3
 3rd speed rpm : 490
 travel mm : 2.68...3.18
 4th speed rpm : 872
 travel mm : 4.72...5.22
 5th speed rpm : 1334
 travel mm : 8.23...8.73

GUIDE SLEEVE POSITION

Speed rpm : 1350
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del. quantity : 92.5...94.5
 1000 : (91.5...96.5)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 10.75
Speed rpm : 1324...1340
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:
Speed rpm : 225
Minimum rack travel: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.7...11.8
2nd speed rpm : 1300
Rack travel in m: 11.65...11.85

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.7...11.8

Measurement

Speed 1/min : 600

1st pressure hPa : 290
Rack travel in m: 11.2...11.3
2nd pressure hPa : 160
Rack travel in m: 10.3...10.5
3rd pressure hPa : -
Rack travel in m: 9.8...10.0

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 89.5...92.5
1000 s: (87.0...95.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.75
Speed rpm : 1324...1340

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 28.04.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 314
 Injection pump
 Pump designation : PES6MW100/72ORS1227
 EP type number : 0 413 406 215
 Governor
 Governor design. : RQ325/1300MW129
 Governor no. : 0 420 082 070

Cust. part no. : 1249932

Customer-spec. information
 Customer : DAF

Engine : NS156L

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

K04

Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2- 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm³/ : 11.0...11.2

100 s : (10.8...11.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 4.4...4.6
 Del.quantity cm³/ : 0.7...1.1
 100 s : (0.45...1.35)

Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1360
 travel mm : 6.3...6.7
 2nd speed rpm : 1300
 travel mm : 5.9...6.1
 3rd speed rpm : 450
 travel mm : 3.5...4.1
 4th speed rpm : 325
 travel mm : 1.7...2.1

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 800
 Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 110.0...112.0
 1000 : (108.0...114.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Setting point:
Speed rpm : 800
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.05
Speed rpm : 1334...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1
Control lever
position degrees: 74...78
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:
Speed rpm : 225
Minimum rack trave: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING
Speed rpm : 475
Rack travel in mm : 2.0

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.0...13.1
2nd speed rpm : 1300
Rack travel in m: 12.95...13.15
3rd speed rpm : 600
Rack travel in m: 10.0...10.2
4th speed rpm : 1000
Rack travel in m: 13.95...14.15

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.0...13.1

Measurement
Speed 1/min : 600

1st pressure hPa : 390
Rack travel in m: 12.2...12.3
2nd pressure hPa : 190
Rack travel in m: 10.9...11.1
3rd pressure hPa : -
Rack travel in m: 10.0...10.2

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 105.5...108.5
1000 s: (103.0...111.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 63.0...65.0
1000 s: (61.0...67.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.05
Speed rpm : 1334...1350

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 31.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 314
 Injection pump
 Pump designation : PES6MW100/720RS1227
 EP type number : 0 413 406 215
 Governor
 Governor design. : RQ325/1300MW129
 Governor no. : 0 420 082 070

Cust. part no. : 1249932/5

Customer-spec. information
 Customer : DAF

Engine : NS156L

1st version kw : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

K06

Rack travel in mm : 13.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm³/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 0.7...1.1

100 s: (0.45...1.35)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.76...1.96

2nd speed rpm : 424
 travel mm : 3.25...3.45

3rd speed rpm : 600
 travel mm : 5.9...6.1

4th speed rpm : 1300
 travel mm : 5.9...6.1

5th speed rpm : 1357
 travel mm : 6.26...6.46

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 800

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Setting point:

Speed rpm : 800
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.05
Speed rpm : 1334...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 74...78
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.5

Testing:

Speed rpm : 225
Minimum rack travel: 6.0
Speed rpm : 325
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING

Speed rpm : 475
Rack travel in mm : 2.0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 13.0...13.1
2nd speed rpm : 1300
Rack travel in m: 12.95...13.15
3rd speed rpm : 600
Rack travel in m: 10.0...10.2
4th speed rpm : 1000
Rack travel in m: 13.95...14.15

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.0...13.1

Measurement

K07

Speed 1/min : 600

1st pressure hPa : 390
Rack travel in m: 12.2...12.3
2nd pressure hPa : 190
Rack travel in m: 10.9...11.1
3rd pressure hPa : -
Rack travel in m: 10.0...10.2

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1300
Del. quantity cm3/ : 105.5...108.5
1000 s: (103.0...111.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm3/ : 63.0...65.0
1000 s: (61.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.05
Speed rpm : 1334...1350

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del. quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI
 Edition : 22.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 316
 Injection pump
 Pump designation :
 PES6MW100/320RS1216-
 1
 EP type number : 0 413 406 223
 Governor
 Governor design. :
 RQV350...1175MW113-2
 Governor no. : 0 420 083 248

Customer-spec. information

Customer : RVI
 Engine : MIDR 060226 X

1st version kW : 166.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 033
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.2...4.3
 Rack travel in mm : 11.5...14.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175
 Rack travel in mm : 13.8...14.0
 Del. quantity cm³/ : 12.2...12.4
 100 s : (12.0...12.6)
 Spread cm³ : 0.3
 100 s : (0.6)
 2nd speed rpm : 275
 Rack travel in mm : 5.95...6.35
 Del. quantity cm³/ : 2.8...3.2
 100 s : (2.55...3.45)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 0.61...1.11
 2nd speed rpm : 468
 travel mm : 2.21...2.71
 3rd speed rpm : 620
 travel mm : 3.38...3.88
 4th speed rpm : 929
 travel mm : 5.13...5.63
 5th speed rpm : 1266
 travel mm : 6.86...7.36

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1460
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1175
 Aneroid pressure h: 1000

Del.quantity : 122.0...124.0
1000 : (120.0...126.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 301...309

Testing:

1st rack travel in: 12.95
Speed rpm : 1230...1240
2nd rack travel in: 4.00
Speed rpm : 1440...1480
4th rack travel in: 1600
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 244...252
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.15

Testing:

Speed rpm : 200
Minimum rack travel: 6.95
Speed rpm : 275
Rack travel in mm : 5.95...6.35

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.9...14.0
2nd speed rpm : 700
Rack travel in m: 13.9...14.0

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.9...14.0

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.05...10.65
2nd pressure hPa : 520
Rack travel in m: 13.15...11.25
3rd pressure hPa : 350
Rack travel in m: 10.95...11.25

FUEL DELIVERY CHARACTERISTICS

K09

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 129.5...133.5
1000 s: (126.5...136.5)
Spread cm3 : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 67.0...69.0
1000 s: (65.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.95
Speed rpm : 1230...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 95.0...115.0
1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.95...6.35
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI
 Edition : 20.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 317

Injection pump
 Pump designation :
 PES6MW100/320RS1214-
 1
 EP type number : 0 413 406 224
 Governor
 Governor design. :
 RQV275...1250MW115-K
 Governor no. : 0 420 083 994

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 W
 1st version kW : 151.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 033
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 008

Outside diameter
 x wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.2...4.3
 Rack travel in mm : 16.5...19.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 14.1...14.2
 Del. quantity cm³/ : 11.8...12.0
 100 s : (11.6...12.2)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 275
 Rack travel in mm : 5.95...6.35
 Del. quantity cm³/ : 1.9...2.3
 100 s : (1.65...2.55)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 0.751...1.25
 2nd speed rpm : 390
 travel mm : 2.14...2.64
 3rd speed rpm : 550
 travel mm : 3.67...4.17
 4th speed rpm : 924
 travel mm : 6.52...7.02
 5th speed rpm : 1344
 travel mm : 9.74...10.24

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000

Del.quantity : 118.0...120.0
1000 : (116.0...122.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 298...306

Testing:
1st rack travel in: 13.15
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1600
Speed rpm : 0.0...1.0

LOW IDLE 1
Control lever
position degrees: 240...248
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.05

Testing:
Speed rpm : 200
Minimum rack travel: 6.65
Speed rpm : 275
Rack travel in mm : 5.95...6.15

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1000
Rack travel mm : 14.1...14.2

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.95...11.35
2nd pressure hPa : 300
Rack travel in m: 12.35...12.45
3rd pressure hPa : 200
Rack travel in m: 11.65...11.95

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 115.5...118.5
1000 s: (113.0...121.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 79.0...81.0
1000 s: (77.0...83.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.15
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 95.0...115.0
1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.95...6.15
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI
 Edition : 20.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 318

Injection pump
 Pump designation :
 PES6MW100/32ORS1214-
 1
 EP type number : 0 413 406 224
 Governor
 Governor design. :
 RQV275...1250MW115-1
 K
 Governor no. : 0 420 083 992

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 V

1st version kW : 129.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.2...4.3
 Rack travel in mm : 16.5...19.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.1...13.2

Del. quantity cm³/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275
 Rack travel in mm : 5.45...5.85
 Del. quantity cm³/ : 1.9...2.3
 100 s: (1.65...2.55)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 0.76...1.26
 2nd speed rpm : 389
 travel mm : 2.14...2.64
 3rd speed rpm : 560
 travel mm : 3.77...4.27
 4th speed rpm : 924
 travel mm : 6.53...7.03
 5th speed rpm : 1344
 travel mm : 9.75...10.25

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000

Del. quantity : 112.0...114.0
1000 : (110.0...116.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 296...304

Testing:

1st rack travel in: 12.15
Speed rpm : 1295...1315
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.0...1.0

LOW IDLE 1

Control Lever
position degrees: 238...246
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.65

Testing:

Speed rpm : 200
Minimum rack travel: 6.25
Speed rpm : 275
Rack travel in mm : 5.45...5.85

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.1...13.2
2nd speed rpm : 700
Rack travel in m: 12.2...12.3

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1000
Rack travel mm : 13.1...13.2

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.05...11.45
2nd pressure hPa : 240
Rack travel in m: 12.6...12.7
3rd pressure hPa : 120
Rack travel in m: 11.6...11.9

FUEL DELIVERY CHARACTERISTICS

K13

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del. quantity cm³/ : 108.5...111.5
1000 s: (106.0...114.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 89.0...91.0
1000 s: (87.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.15
Speed rpm : 1300...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 95.0...115.0
1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.45...5.85
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI
 Edition : 20.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 319
 Injection pump
 Pump designation :
 PES6MW100/32ORS1216-
 1
 EP type number : 0 413 406 223
 Governor
 Governor design. : RQV275...1250MW124K
 Governor no. : 0 420 083 989

Customer-spec. information
 Customer : RVI

Engine : MIDR D60226 U

1st version kW : 110.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.2...4.3

Rack travel in mm : 11.5...14.5
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.2...13.3

Del. quantity cm³/ : 10.6...10.8

100 s: (10.4...11.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275

Rack travel in mm : 5.85...6.25

Del. quantity cm³/ : 2.0...2.4

100 s: (1.75...2.65)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 0.75...1.25

2nd speed rpm : 390
 travel mm : 2.14...2.64

3rd speed rpm : 550
 travel mm : 3.77...4.27

4th speed rpm : 924
 travel mm : 6.53...7.03

5th speed rpm : 1344
 travel mm : 9.75...10.25

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 106.0...108.0

1000 : (104.0...110.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:

1st rack travel in: 12.25
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1600
Speed rpm : 0.0...1.0

LOW IDLE 1

Control lever
position degrees: 241...249
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.05

Testing:

Speed rpm : 200
Minimum rack travel: 6.65
Speed rpm : 275
Rack travel in mm : 5.85...6.25

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.2...13.3
2nd speed rpm : 700
Rack travel in m: 11.85...11.95

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 93.0...96.0
1000 s: (90.5...98.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.25
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100

K15

Del.quantity cm³/ : 95.0...115.0
1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.85...6.25
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ME
 Edition : 31.05.94
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 474 020

Injection pump
 Pump designation : PES4MM100/72ORS1212
 EP type number : 0 413 404 114
 Governor
 Governor design. :
 RSV350...1200MWA346

Governor no. : 0 420 085 180

Cust. part no. : 0180747202

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM364LA

1st version kW : 99.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.7...3.8
 : (3.65...3.85)
 Rack travel in mm : 9.0...12.0
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.5...13.6

Del.quantity cm³/ : 9.3...9.5

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.8

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...1.0

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del.quantity : 96.0...98.0

1000 : (94.0...10.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 12.55
Speed rpm : 1240...1245
2nd rack travel in: 4.00
Speed rpm : 1289...1294
4th rack travel in: 1450
Speed rpm : 0.3...1.7

LOW IDLE 1

Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 6.0...6.8

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 13.5...13.6
2nd speed rpm : 600
Rack travel in m: 13.45...13.65

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.5...13.6

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.65...10.85
2nd pressure hPa : 200
Rack travel in m: 11.9...12.0
3rd pressure hPa : 375
Rack travel in m: 12.9...13.2

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 84.5...87.5
1000 s: (82.0...90.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 39.0...41.0
1000 s: (37.0...43.0)

K17

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.55
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 85.0...95.0
1000 s: (83.0...98.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.0...6.8
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 06.06.94
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 099A
Injection pump
Pump designation : PES6MW100/320RS1209
EP type number : 0 413 406 200
Governor
Governor design. : RSV300...900MW1A802
Governor no. : 0 420 085 113

Cust. part no. : 3-7112

Customer-spec. information
Customer : MAN

Engine : D0826LE20

1st version kW : 141.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30
: (3.15...3.35)
Rack travel in mm : 14.0...16.0
Firing order : 1- 5- 3- 6- 2- 4

Phasing :
0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850
Rack travel in mm : 14.80...14.90
Del. quantity cm³/ : 14.8...15.0
100 s : (14.5...15.3)
Spread cm³ : 0.3
100 s : (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.6...7.4
Del. quantity cm³/ : 3.4...3.8
100 s : (3.15...4.05)
Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Del. quantity : 148.0...150.0
1000 : (145.0...153.0)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 88...96

Setting point:

Speed rpm : 800
Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.80
Speed rpm : 900...905
2nd rack travel in: 4.00
Speed rpm : 936...941
4th rack travel in: 1050
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0
Speed rpm : 300
Rack travel in mm : 6.6...7.4

SET IDLE AUXILIARY SPRING

Speed rpm : 340
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...7.40
Del.quantity cm³/ : 34.0...38.0
1000 s: (31.5...40.5)
Spread cm³ : 6.00
1000 s: (9.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VME
Edition : 30.05.94
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 136
Injection pump
Pump designation : PES6MW100/320RS1237
EP type number : 0 413 406 233
Governor
Governor design. :
RSV300...1100MW1A353
Governor no. : 0 420 085 223

Customer-spec. information
Customer : VME

Engine : TD61GD

1st version kw : 92.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.0...13.0
Firing order : 1- 5- 3- 6- 2- 4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 13.15...13.25
Del. quantity cm3/ : 10.5...10.7
100 s : (10.3...10.9)
Spread cm3 : 0.3
100 s : (0.6)

2nd speed rpm : 315.0
Rack travel in mm : 6.4...6.6
Del. quantity cm3/ : 0.4...0.8
100 s : (0.15...1.05)
Spread cm3 : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 105.0...107.0
1000 : (102.0...109.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Setting point:
Speed rpm : 800
Rack travel in mm : 0.65

Testing:

1st rack travel in: 12.20
Speed rpm : 1135...1145
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 315
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 315
Rack travel in mm : 6.4...6.6

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.15...13.25
2nd speed rpm : 500
Rack travel in m: 13.8...14.0
3rd speed rpm : 660
Rack travel in m: 13.4...13.6

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...97.0
1000 s: (100.0...80.0)
Rack travel in mm : 20.0...21.0

LOW IDLE

Speed rpm : 315
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 4.0...8.0
1000 s: (1.5...10.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 31.05.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 105
 Injection pump
 Pump designation : PES6MW100/321RS1231
 EP type number : 0 413 406 225
 Governor
 Governor design. :
 RSV300...1100MWOA343
 -1
 Governor no. : 0 420 085 209
 Cust. part no. : 3-7263
 Customer-spec. information
 Customer : MAN
 Engine : D0826LE522
 1st version kW : 154.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.45...3.65)
 Rack travel in mm : 9.0...13.0
 Firing order : 1- 5- 3- 6- 2-
 4

Phasing :
 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.05...12.15
 Del. quantity cm³/ : 14.3...14.5
 100 s : (14.0...14.8)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 300
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 0.9...1.3
 100 s : (0.65...1.55)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1000
 Del. quantity : 143.0...145.0
 1000 : (140.0...148.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Setting point:
Speed rpm : 800
Rack travel in mm : 0.65

Testing:
1st rack travel in: 11.00
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 300
Rack travel in mm : 4.9...5.1

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.0

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.05...12.15
2nd speed rpm : 900
Rack travel in m: 12.3...12.4
3rd speed rpm : 600
Rack travel in m: 12.3...12.5

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.3...12.5

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.4...9.5
2nd pressure hPa : 150
Rack travel in m: 9.7...9.8
3rd pressure hPa : 600
Rack travel in m: 11.6...11.9

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.9...5.1
Del. quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 05.06.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 486 108

Injection pump
Pump designation : PES6MW100/321RS1208
EP type number : 0 413 406 199
Governor
Governor design. :
RSV350...900MW1A360-

Governor no. : 0 420 085 239

Cust. part no. : 3-7311

Customer-spec. information
Customer : MAN

Engine : D0826LE102

1st version kW : 154.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.45...3.65)
Rack travel in mm : 9.0...13.0
Firing order : 1- 5- 3- 6- 2-
4

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 870

Rack travel in mm : 14.85...14.95

Del. quantity cm³/ : 15.8...16.0

100 s : (15.5...16.3)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 350
Rack travel in mm : 4.4...4.6
Del. quantity cm³/ : 1.1...1.5
100 s : (0.85...1.75)

Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 158.0...160.0

1000 : (155.0...163.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed rpm : 800
Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.80
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 965...975
4th rack travel in: 1050
Speed rpm : 0.30...1.70
5th rack travel in: 965...995
Speed rpm : 4.00

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 350
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING

Speed rpm : 350
Rack travel in mm : 4.9...5.1

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 870
Rack travel in m: 14.85...14.95
2nd speed rpm : 500
Rack travel in m: 14.8...15.0
3rd speed rpm : 700
Rack travel in m: 14.8...15.0

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.4...4.6

Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 07.06.94
 Replaces : 16.07.93
 Test oil : ISO-4113
 Combination no. : 9 400 085 243
 Injection pump
 Pump designation : PES4A80D320RS1282-1
 EP type number : 9 400 083 097
 Governor
 Governor design. :
 RS350/1500A2C2073-2R
 Governor no. : 9 420 083 269

Customer-spec. information
 Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 9.20...9.30
 Del. quantity cm³/ : 5.8...5.9
 100 s: (5.6...6.0)
 Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 0.7...1.0
 100 s: (0.5...1.2)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Del. quantity : 58.0...59.0
 1000 : (56.5...60.5)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 111...119

Testing:

1st rack travel in: 8.20
Speed rpm : 1580...1590
2nd rack travel in: 4.00
Speed rpm : 1625...1655
4th rack travel in: 1800
Speed rpm : 0.30...1.70

Remarks:

:

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:

Speed rpm : 250
Minimum rack trave: 6.80
Speed rpm : 350
Rack travel in mm: 6.00...6.20
Rack travel in mm : 4.00
Speed rpm : 430...490
Speed rpm : 550
Maximum rack trave: 3.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 900
Rack travel in m: 10.20...10.40
4th speed rpm : 1200
Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 58.0...61.0
1000 s: (56.5...62.5)
Speed rpm : 900
Del.quantity cm³/ : 62.5...65.5
1000 s: (61.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 7.6.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 484
 Injection pump
 Pump designation : PES5P120A720LS7280
 EP type number : 9 400 087 087
 Governor
 Governor design. : RQV300...1050PA1114
 Governor no. : 9 420 080 361

Customer-spec. information
 Customer : MRECEDES-BENZ

Engine : OM 449 LA

1st version kw : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 19.3...19.5

100 s: (19.0...19.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.70...7.90

2nd speed rpm : 300
 travel mm : 0.50...1.00

3rd speed rpm : 500
 travel mm : 3.00...3.50

4th speed rpm : 700
 travel mm : 5.20...5.70

5th speed rpm : 1165
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1115

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 193.0...195.0
1000 : (190.0...198.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 11.10
Speed rpm : 1105...1115
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 13.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 250...400

TORQUE CONTROL

Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.0...12.2
2nd speed rpm : 800
Rack travel in m: 13.0...13.2
3rd speed rpm : 900
Rack travel in m: 12.7...12.9
4th speed rpm : 950
Rack travel in m: 12.4...12.6

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 12.20...12.40

Measurement

Speed 1/min : 600

1st pressure hPa : 360
Rack travel in m: 10.60...10.80
2nd pressure hPa : 500

L01

Rack travel in m: 11.60...11.80
3rd pressure hPa : 1080
Rack travel in m: 12.40...12.50
4th pressure hPa : 1200
Rack travel in m: 12.70...12.90
5th pressure hPa : -
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 194.0...198.0
1000 s: (191.0...201.0)
Spread cm3 : 8.00
1000 s: (12.)

Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 218.5...222.5
1000 s: (215.5...225.5)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 120.0...122.0
1000 s: (117.0...125.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1105...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 26.05.94
replaces : 12.93
Calibrating oil : ISO-4113
Injection pump : VE4/10F1350R418-2
Type number : 0 460 404 076
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824 GF 03

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 6.40...7.00
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 76.00...77.00

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1420
Del. quantity cm3/
1000S.: 58.00...62.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 65.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1350
TD travel mm: 6.00...6.80
mm: -

electromagnet Volt: 24
2nd speed 1/min: 1200
TD travel mm: 4.30...5.10
mm: (4.00...5.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 900
 TD travel mm: 1.00...1.80
 mm: (0.70...2.10)

Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump pressure bar: 4.30...5.00
 Shutoff electromagnet Volt: 24
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 6.40...7.00
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1200
 Supply-pump pressure bar: 7.40...8.00
 Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Shutoff electromagnet Volt: 24
 Overflow quantity cm³/10s: 41.70...86.40
 (26.70...101.40)
 2nd speed 1/min: 1350
 Shutoff electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1550
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 0.00...3.00

2nd speed 1/min: 1510
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 0.00...15.00

3rd speed 1/min: 1460
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 15.00...45.00

4th speed 1/min: 1420
 Shutoff electromagnet Volt: 24

Del. quantity cm³/1000S.: 58.00...62.00
 (53.50...66.50)

5th speed 1/min: 1350
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 75.70...78.70
 (74.20...80.20)

6th speed 1/min: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 76.00...77.00
 (74.00...79.00)

7th speed 1/min: 800
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 77.00...81.00
 (75.50...82.50)

8th speed 1/min: 600
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 63.00...69.00
 (62.00...70.00)

Mech. shutoff:
 Mech. Abst \ddot{u} llung:

1st speed 1/min: 1350
 Del. quantity cm³/1000S.: 0.00...3.00
 -

Shutoff electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 7.00...13.00
 (4.50...15.50)

Dispersion cm³/1000S.: 3.5
 (3.5)

2nd speed 1/min: 450
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff electromagnet Volt: 24

Del. quantity cm³/: 65.00...105.00
1000S.: (65.00...105.00)

2nd speed 1/min: 450
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

4th speed 1/min: 100
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 64.00...66.00
1000S.: (64.00...66.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.0...1.2
Ya	mm: 37.4...41.4
Yb	mm: 39.4...44.6

Remarks:

: MAN 51.11103-721

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 09.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1300R529
Type number : 0 460 424 097
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T4.40 110TI "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1200
Setting value mm: 1.50...1.70
Shutoff
electromagnet Volt: 24

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Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1200
Setting value bar: 6.00...6.60
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 73.50...74.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 57.50...58.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1440
Charge press hPa: 1200
Del. quantity cm3/
1000S.: 48.00...52.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 80.00...140.00
Shutoff

electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 950
Charge press hPa: 1200
TD travel mm: 2.40...3.00
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 850
Charge press hPa: 1200
TD travel mm: 1.50...1.70
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 750
Charge press hPa: 1200
TD travel mm: 0.30...0.90
mm: (0.00...1.20)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1300
Charge press. hPa: 1200
TD travel mm: 3.00...3.60
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Charge press. hPa: 1200
Supply-pump pressure bar: 7.90...8.50

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 850
Charge press. hPa: 1200
Supply-pump pressure bar: 6.00...6.60

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure bar: 4.50...5.10

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
cm³/10s: (26.70...98.40)

2nd speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 550
LDA-stroke mm: 5.6
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 68.50...69.50
1000S.: (66.00...72.00)

2nd speed 1/min: 1580
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1500
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 24.00...36.00
1000S.: (20.00...40.00)

5th speed 1/min: 1440
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 48.00...52.00
1000S.: (44.00...56.00)

9th speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 76.00...79.00
1000S.: (74.00...81.00)

12th speed 1/min: 1000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 73.50...74.50
1000S.: (71.00...77.00)

16th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet volt: 24
Del. quantity cm³/: 53.50...58.50
1000H.: (52.50...59.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 57.50...58.50
1000S.: (55.00...61.00)

20th speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 72.00...75.00
1000S.: (70.00...77.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1300
Charge press. hPa: 1200
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...12.00
1000S.: (5.00...15.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...140.00
1000S.: (80.00...140.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...140.00
1000S.: (80.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

L07

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.0...1.3
SVS max. mm: -
LDA stroke mm: 5.6
Ya mm: 31.5...33.5
Yb mm: 47.7...56.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
 Edition : 09.06.94
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/12F1200R568
 Type number : 0 460 424 101
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0824 LFL 01
 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 110

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
 Charge press. hPa: 1500
 Setting value mm: 2.00...2.40

AFB/AFB
 valve Volt: 12

Supply-pump pressure

Speed 1/min: 850
 Charge press hPa: 1500
 Setting value bar: 6.40...7.00

KSB/AFB
 valve Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
 Charge press. hPa: 1500
 Del. quantity cm³/
 1000S.: 107.50...108.50

KSB/AFB
 valve Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 60.50...61.50

KSB/AFB
 valve Volt: 12 11

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 8.00...12.00

KSB/AFB
 valve Volt: 12
 Del. quantity cm³/: 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1300
 Charge press hPa: 1500
 Del. quantity cm³/
 1000S.: 72.00...78.00

KSB/AFB
 valve Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 100.00...160.00
 mind 1000S.: 100.0

KSB/AFB
 Valve Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1500
TD travel mm: 3.60...4.40
mm: (3.30...4.70)

KSB/AFB valve Volt: 12
3rd speed 1/min: 850
Charge press hPa: 1500
TD travel mm: 2.00...2.40
mm: (1.50...2.90)

KSB/AFB valve Volt: 12
4th speed 1/min: 750
Charge press hPa: 1500
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

KSB/AFB valve Volt: 12
5th speed 1/min: 1200
Charge press. hPa: 1500
TD travel mm: 4.50...5.30
mm: (4.50...5.30)

KSB/AFB valve Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 550
Charge press. hPa: 1500
Supply-pump pressure bar: 4.90...5.50

KSB/AFB valve Volt: 12
2nd speed 1/min: 850
Charge press. hPa: 1500
Supply-pump pressure bar: 6.40...7.00

KSB/AFB valve Volt: 12
3rd speed 1/min: 1200
Charge press. hPa: 1500
Supply-pump pressure bar: 8.10...8.70

KSB/AFB valve Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 550
Charge press. hPa: -
KSB/AFB valve Volt: 12
Overflow quantity cm3/10s: 41.70...86.10
(26.70...101.10)

2nd speed 1/min: 1200
Charge press. hPa: 1500
KSB/AFB valve Volt: 12

Overflow quantity cm3/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 550
Charge-air pressure-setting point hPa: 400
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 83.50...84.50
(81.50...86.50)

2nd speed 1/min: 1370
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1340
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 4.50...19.5
-

5th speed 1/min: 1300
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 72.00...78.00
-

8th speed 1/min: 1260
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 97.00...103.00
(95.00...105.00)

9th speed 1/min: 1200
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 101.00...106.00
(99.50...107.50)

12th speed 1/min: 1000
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 107.50...108.50
(105.50...110.50)

15th speed 1/min: 850
Charge press. hPa: 1500
KSB/AFB valve Volt: 12
Del. quantity cm3/1000s.: 111.50...116.50
(110.00...118.00)

17th speed 1/min: 700
Charge press. hPa: 1500
KSB solenoid-operated valve volt: 12

Del. quantity cm³/: 110.00...115.00
1000H.: (108.50...116.50)
18th speed 1/min: 550
Charge press. hPa: -

KSB/AFB
valve Volt: 12
Del. quantity cm³/: 60.50...61.50
1000S.: (58.00...64.00)

20th speed 1/min: 550
Charge press. hPa: 1500
KSB/AFB
valve Volt: 12
Del. quantity cm³/: 109.50...118.50
1000S.: (108.00...120.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1200
Charge press. hPa: 1500
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

KSB/AFB
valve Volt: 12

Idle delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 330
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...105.00
1000S.: -

2nd speed 1/min: 430
Del. quantity cm³/: 40.00...80.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.00...46.00 L
1000S.: (37.00...53.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.0...160.0 V
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS1	mm: 1.3...1.6
Ya	mm: 37.4...40.4
Yb	mm: 35.4...40.6

Ya = Distance between VE flange and
speed-control lever in idle
position :
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Pump with slave plunger

Starting delivery check
V = Speed-control lever in full-load
position

Starting delivery check
L = Speed-control lever in idle
position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 10.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1150R587
Type number : 0 460 424 105
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : "DI" 0824 LUE 521

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 1.80...2.20

AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 6.70...7.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 107.50...108.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 62.50...63.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 18.00...22.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1230
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 72.00...78.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 90.00...150.00
mind 1000S.: 90.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.40...3.20
mm: (2.10...3.50)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 450
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.70...7.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000

Charge press. hPa: 1000
Supply-pump
pressure bar: 7.10...7.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 450
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 1150
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450
Charge-air pressure-setting
point hPa: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 89.50...90.50
1000S.: (86.50...93.50)
2nd speed 1/min: 1350
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1320
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)
4th speed 1/min: 1270
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...55.00
 1000S.: (15.00...55.00)
 5th speed 1/min: 1230
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 72.00...78.00
 1000S.: (66.50...83.50)
 9th speed 1/min: 1150
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 95.00...100.00
 1000S.: (93.50...101.50)
 10th speed 1/min: 1000
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 98.50...103.50
 1000S.: (97.00...105.00)
 12th speed 1/min: 800
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 107.50...108.50
 1000S.: (105.50...110.50)
 18th speed 1/min: 450
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 62.50...63.50
 1000S.: (60.00...66.00)
 20th speed 1/min: 450
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 107.50...116.50
 1000S.: (106.00...118.00)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 1150
 Charge press. hPa: 1500
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: 12
 Electr. shutoff:

1st speed 1/min: 300
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 300
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...22.00
 1000S.: (13.50...26.50)

Dispersion cm³/: 6.0
 1000S.: (6.5)

2nd speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 90.00...150.00
 1000S.: (90.00...150.00)

2nd speed 1/min: 220
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...90.00
 1000S.: (30.00...90.00)

4th speed 1/min: 100
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 90.00...150.00
 1000S.: (90.00...150.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS1	mm: 1.0...1.3
SVS max.	mm: 3.2
Ya	mm: 41.8...44.8
Yb	mm: 39.1...44.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN
Edition : 13.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F2050L607
Type number : 0 460 424 106
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : AD/TAMD 31 CE "DI"

Power KW: 110

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Charge press. hPa: 1000
Setting value mm: 2.60...2.80

Supply-pump pressure

Speed 1/min: 1600
Charge press hPa: 1000
Setting value bar: 6.70...7.30

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 77.50...78.50
Dispersion cm³/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 43.50...44.50

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 12.00...16.00
Del. quantity cm³/
1000S.: (6.0)

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 28.00...32.00

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 45.00...95.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700
Charge press hPa: 1000
TD travel mm: 3.00...3.60
mm: (2.60...4.00)

3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 2.60...2.80
mm: (2.00...3.40)

4th speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 0.80...1.40
mm: (0.40...1.80)

Supply-pump pressure characteristic:

1st speed 1/min: 2050
 Charge press. hPa: 1000
 Supply-pump pressure bar: 8.30...8.90
 2nd speed 1/min: 1600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.70...7.30
 3rd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.20...4.80

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 Overflow quantity cm³/10s: 88.90...133.40
 (73.90...159.40)
 2nd speed 1/min: 2050
 Charge press. hPa: 1000
 Overflow quantity cm³/10s: 111.20...194.60
 (96.20...209.60)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 900
 Charge-air pressure-setting point hPa: 400
 Del. quantity cm³/1000S.: 62.00...63.00
 (59.50...65.50)
 2nd speed 1/min: 2320
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 5th speed 1/min: 2250
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 28.00...32.00
 (24.00...36.00)
 9th speed 1/min: 2050
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 74.00...77.00
 (72.50...78.50)
 12th speed 1/min: 1800
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 77.50...78.50
 (75.50...80.50)
 18th speed 1/min: 600
 Charge press. hPa: -
 Del. quantity cm³/1000S.: 43.50...44.50
 (41.50...46.50)
 20th speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 73.50...78.50
 (71.00...81.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 2050
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 400
 Del. quantity cm³/1000S.: 12.00...16.00
 (9.00...19.00)
 Dispersion cm³/1000S.: 6.0
 (6.0)
 2nd speed 1/min: 500
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
 Del. quantity cm³/1000S.: 70.00...110.00
 (70.00...110.00)
 2nd speed 1/min: 500
 Del. quantity cm³/1000S.: 20.00...50.00
 (20.00...50.00)
 4th speed 1/min: 100
 Del. quantity cm³/1000S.: 45.00...95.00
 (45.00...95.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: KOT
 MS1 mm: 1.5...1.8
 Ya mm: 37.2...39.2
 Yb mm: 49.5...57.7

Remarks:

:
 :
 :
 Ya = Distance between VE flange and

speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Pump with slave plunger



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SNF
Edition : 13.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R265-2
Type number : 0 460 426 183
Customer Part-No. :

Customer-specific information
Customer : SNF

Engine : WD 612.02/04

Power KW: 100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 1.50...1.90

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 90.50...91.50
Dispersion cm3/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 16.00...20.00
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1300
Del. quantity cm3/
1000S.: 21.00...27.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.00...140.00
mind 1000S.: 90.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
TD travel mm: 3.10...3.90
mm: (2.80...4.20)
3rd speed 1/min: 800
TD travel mm: 1.50...1.90
mm: (1.00...2.40)
5th speed 1/min: 600
TD travel mm: 0.20...1.00
mm: (0.00...1.30)

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Supply-pump
pressure bar: 7.20...7.80
2nd speed 1/min: 800
Supply-pump
pressure bar: 5.50...6.10
3rd speed 1/min: 600
Supply-pump
pressure bar: 4.50...5.10

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Overflow : 41.70...86.10
 quantity cm³/10s: (26.70...101.10)
 2nd speed 1/min: 1200
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1rd speed 1/min: 1380
 Del. quantity cm³/: 0.00...3.00
 1000S.: -
 2nd speed 1/min: 1300
 Del. quantity cm³/: 21.00...27.00
 1000S.: (18.00...30.00)
 3rd speed 1/min: 1250
 Del. quantity cm³/: 60.00...100.00
 1000S.: -
 4th speed 1/min: 1200
 Del. quantity cm³/: 87.50...90.50
 1000S.: (86.70...91.30)
 5th speed 1/min: 1000
 Del. quantity cm³/: 90.50...91.50
 1000S.: (88.70...93.30)
 6th speed 1/min: 500
 Del. quantity cm³/: 88.00...90.00
 1000S.: (87.00...92.00)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 1200
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
 Del. quantity cm³/: 16.0...20.0
 1000S.: (14.0...22.0)
 Dispersion cm³/: 3.5
 1000S.: (3.5)
 2nd speed 1/min: 350
 Del. quantity cm³/: 4.50...10.50
 1000S.: (3.50...11.50)
 3rd speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 280
 Del. quantity cm³/: 65.00...85.00
 1000S.: -

2nd speed 1/min: 150
 Del. quantity cm³/: 100.0...150.0
 1000S.: -

4th speed 1/min: 100
 Del. quantity cm³/: 90.00...140.00
 1000S.: -

Shutoff electromagnet:

Cut-in
 min voltage : -
 Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.5
SVS max.	mm: 5.4
Ya	mm: 37.2...39.2
Yb	mm: 53.8...62.2

Remarks:

:
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 13.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1200L385-4
Type number : 0 460 426 214
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : T 6.354

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.(0...50).00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.5
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
Setting value mm: 1.70...2.10
Shutoff
electromagnet Volt: 12

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Supply-pump pressure

Speed 1/min: 700
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 101.5...102.5

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1210
Del. quantity cm³/
1000S.: 82.00...88.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 95.00...135.00
mind 1000S.: 95.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1050
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

electromagnet Volt: 12
2nd speed 1/min: 700
TD travel mm: 1.70...2.10
mm: (1.20...2.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
TD travel mm: 0.40...1.20
mm: (0.30...1.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1050
Supply-pump
pressure bar: 6.90...7.50
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 700
Supply-pump
pressure bar: 5.70...6.30
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump
pressure bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 1050
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.0...52.00
1000S.: -
2nd speed 1/min: 1210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 82.00...88.00
1000S.: (79.00...91.00)
3rd speed 1/min: 1050
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 111.0...115.00
1000S.: (99.50...116.50)
4th speed 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 101.5...102.5
1000S.: (99.0...105.0)
5th speed 1/min: 500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 92.00...98.00
1000S.: (90.00...100.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: -
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.0...17.0
1000S.: (11.0...19.0)
Dispersion cm³/: 3.5
1000S.: (5.0)
2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.0...29.0
1000S.: (19.0...31.0)
3rd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: -
2nd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.0...135.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.0...5.4
MS mm: 0.8...1.2
Ya mm: 29.0...31.0
Yb mm: 59.0...67.0

Remarks:

⋮

Y_a = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Y_b = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 13.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R596
Type number : 0 460 426 236
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : 1006 E.6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 1.30...1.50
Shutoff
electromagnet Volt: 12

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Supply-pump pressure

Speed 1/min: 900
Setting value bar: 6.3...6.9
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 300
Del. quantity cm³/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 10.5...11.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1525
Del. quantity cm³/
1000S.: 31.0...35.0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 90.00...150.00
mind 1000S.: 90.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
TD travel mm: 3.0...3.6
mm: (2.6...4.0)

electromagnet Volt: 12
2nd speed 1/min: 1100
TD travel mm: 2.00...2.60
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000

TD travel mm: 1.30...1.50
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 900
TD travel mm: 0.10...0.70
mm: (0.00...1.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Supply-pump
pressure bar: 7.80...8.40

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 900
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump
pressure bar: 4.60...5.20

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.40
quantity cm³/10s: (60.00...134.400)

2nd speed 1/min: 1300
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

2nd speed 1/min: 1525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.0...35.0
1000S.: (25.0...41.0)

3rd speed 1/min: 1450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.0...65.0
1000S.: -

4th speed 1/min: 1300

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.5...64.5
1000S.: (59.0...66.0)

5th speed 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.5...58.5
1000S.: (55.0...61.0)

6th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 49.0...53.0
1000S.: (47.5...54.5)

7th speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.0...43.0
1000S.: (38.5...46.5)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.5...11.5
1000S.: (6.00...16.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: -

2nd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.0...150.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.0...1.4
Ya	mm: 31.5...33.5
Yb	mm: 54.3...62.6

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 13.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1300R240-3
Type number : 0 460 426 239
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : PHASER 180 TI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.25
(from BDC): +/-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 0.40...1.20

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 98.50...99.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 86.50...87.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 16.5...20.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1460
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 120.0...160.0
mind 1000S.: 120.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 2.2...2.6
mm: (1.7...3.1)
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.10...1.90
mm: (0.80...2.20)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 7.30...7.90
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...86.10
(26.70...101.10)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700

Charge-air pressure-setting point hPa: 400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 94.00...95.00
(91.00...98.00)
2nd speed 1/min: 1580
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...7.00
(0.00...7.00)
3rd speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)
5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 95.00...98.00
(93.0...100.0)
6th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 86.5...87.5
(84.0...90.0)
7th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 98.5...99.5
(96.0...102.0)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1300
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.50...20.50
1000S.: (13.50...23.50)
Dispersion cm³/: 5.0
1000S.: (5.0)
2nd speed 1/min: 400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 350

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.5...10.5
1000S.: (2.5...12.5)

Automatic starting fuel delivery:

1st speed 1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: -

2nd speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 120.0...160.0
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 120.0...160.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: KOT
MS1 mm: 1.0...1.3
SVS max. mm: 6.0
Ya mm: 37.2...39.2
Yb mm: 50.4...58.6

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F230UR598
Type number : 0 460 484 074
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : F8Q - 620

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 32.3...33.3
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm³/
1000S.: 7.5...11.5
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm³/
1000S.: 1.00...5.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm³/
1000S.: 24.5...30.5
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...70.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm³/
difference 1000S.: -9.0...-15.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: -1.4...-1.6 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2000
TD travel mm: 5.7...6.5
mm: (5.5...6.7)
electromagnet Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.5...3.9
mm: (3.2...4.2)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 600
TD travel mm: 0.8...1.6
mm: (0.6...1.8)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
Supply-pump
pressure bar: 7.20...7.80
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.10...5.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 600
Supply-pump
pressure bar: 3.30...3.90
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950

M02

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...14.50
1000S.: (5.50...15.50)

4th speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.5...30.5
1000S.: (23.5...31.5)

5th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.3...34.3
1000S.: (31.0...35.6)

6th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.3...34.3
1000S.: (31.0...35.6)

7th speed 1/min: 1650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.1...33.1
1000S.: (29.3...33.9)

8th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.30...33.30
1000S.: (30.50...35.10)

9th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...34.50
1000S.: (30.70...35.30)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 7.50...11.50
1000S.: (5.50...13.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -7.0...-9.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 2.0...8.0 ' Z
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.6...-2.2 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...-0.3 "
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

2nd speed 1/min: 210
Shutoff
electromagnet Volt: 12

M03

Del. quantity cm³/: 45.0...75.0
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.4
MS mm: 1.1...1.5
Ya mm: 32.6...36.6
Yb mm: 67.1...79.9

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Z = Absolute delivery

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWW
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2100L525-4
Type number : 0 460 485 015
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4l WK-SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.10...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 7.10...7.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.0...36.0
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.0...9.0
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...75.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -6.5...-14.5 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -1.1...-1.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.90...6.70
mm: (5.60...7.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1100
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
Supply-pump
pressure bar: 5.90...6.50
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 7.10...7.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1790
Supply-pump
pressure bar: 7.80...8.40
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...97.30)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (40.70...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.50...30.50
1000S.: (27.30...31.70)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.0...36.0
1000S.: (33.3...37.7)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.80...34.80
1000S.: (30.30...36.30)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 2100
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 540
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...7.50
1000S.: (5.00...9.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/ : 0.0...3.0 ' Z
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -1.5...-2.7 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.6...-1.4 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...37.00
1000S.: (17.00...37.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.5
Ya mm: 32.8...34.8
Yb mm: 61.5...68.5

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F900R399
Type number : 0 460 494 266
Customer Part-No. :

Customer-specific information

Customer : ONAN

Engine : 4A 2.3 GEN.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 2.5...2.9
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 7500

Setting value bar: 2.8...3.4
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm³/
1000S.: 43.5...44.5
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 900
Del. quantity cm³/
1000S.: 34.5...38.5
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 55.00...85.00
mind 1000S.: 55.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850
TD travel mm: 2.7...3.5
mm: (2.4...3.8)
electromagnet Volt: 12
2nd speed 1/min: 750
TD travel mm: 2.50...2.90
mm: (2.00...3.40)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Supply-pump
pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 750
Supply-pump
pressure bar: 2.80...3.40

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump
pressure bar: 1.80...2.40
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 850
Shutoff
electromagnet Volt: 12
Overflow : 41.70...133.30
quantity cm³/10s: (26.70...148.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 970
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

4th speed 1/min: 940
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...7.00
1000S.: (0.00...7.00)

5th speed 1/min: 900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.50...38.50
1000S.: (32.50...40.50)

6th speed 1/min: 850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.50...44.50
1000S.: (42.00...46.00)

7th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...45.50
1000S.: (42.00...46.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 900
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...55.00
1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...90.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.8...2.0
Ya mm: 59.0...67.0
Yb mm: -

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F1300R315-1
Type number : 0 460 494 268
Customer Part-No. :

Customer-specific information
Customer : ONAN

Engine : 4 A 2.3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 1.90...2.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 3.30...3.90
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 39.5...40.5
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 7.50...11.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1350
Del. quantity cm3/
1000S.: 27.00...31.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...90.00
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300
TD travel mm: 3.10...3.90
mm: (2.80...4.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump pressure bar: 2.70...3.30
 Shutoff electromagnet Volt: 12

2nd speed 1/min: 1000
 Supply-pump pressure bar: 3.30...3.90
 Shutoff electromagnet Volt: 12

3rd speed 1/min: 1300
 Supply-pump pressure bar: 4.40...5.00
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40 (26.70...98.40)

2nd speed 1/min: 1000
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...125.10 (26.70...125.10)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1480
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...4.00 (0.00...4.00)

3rd speed 1/min: 1370
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 10.00...40.00 (10.00...40.00)

5th speed 1/min: 1350
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 27.00...31.00 (25.00...33.00)

9th speed 1/min: 1300
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 41.00...44.00 (39.50...45.50)

12th speed 1/min: 1000
 Shutoff electromagnet Volt: 12

Del. quantity cm³/1000S.: 39.50...40.50 (38.00...42.00)

20th speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 35.50...38.50 (34.50...39.50)

Mech. shutoff:

Idle delivery:

1st speed 1/min: 400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 7.50...11.50 (6.00...13.00)

Dispersion cm³/1000S.: 3.0 (3.0)

2nd speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...4.00 (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 220
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 50.00...80.00 (50.00...80.00)

2nd speed 1/min: 350
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 20.00...50.00 (20.00...50.00)

4th speed 1/min: 100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 50.00...90.00 (50.00...90.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.1...3.4
 KF mm: 5.6...6.0
 MS mm: 0.9...1.3
 Ya mm: 37.2...39.2
 Yb mm: 27.5...32.5

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2300R411
Type number : 0 460 494 270
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : LD20

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.30...3.70
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

M12

Speed 1/min: 1200
Setting value bar: 5.10...5.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2200
Del. quantity cm3/
1000S.: 32.0...33.0
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

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Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 7.50...11.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 12.00...18.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 48.00
KSB/AFB
Valve Volt: 12

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 900
 Inj.-qty. cm3/
 difference 1000S.: -8.6...-12.6 #
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 900
 TD-travel
 difference mm: -0.7...-0.9 #
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2300
 TD travel mm: 7.70...8.50
 mm: (7.60...8.60)

KSB/AFB
 valve Volt: 12
 electromagnet Volt: 12
 2nd speed 1/min: 1800
 TD travel mm: 6.00...6.80
 mm: (5.70...7.10)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 TD travel mm: 3.30...3.70
 mm: (2.80...4.20)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 900
 TD travel mm: 1.50...2.30
 mm: (1.20...2.60)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300

Supply-pump
 pressure bar: 8.20...8.80
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1800
 Supply-pump
 pressure bar: 6.80...57.4
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Supply-pump
 pressure bar: 5.10...5.70
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 900
 Supply-pump
 pressure bar: 4.20...4.80
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (26.80...98.30)
 2nd speed 1/min: 2300
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...152.90
 quantity cm3/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2850
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)
 2nd speed 1/min: 2600
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 12.0...18.0
 1000S.: (10.5...19.5)
 3rd speed 1/min: 2400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.5...37.5
 1000S.: (28.0...39.0)
 4th speed 1/min: 2300
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 33.8...35.8
 1000S.: (32.3...37.3)
 5th speed 1/min: 2200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.0...33.0
 1000S.: (31.2...33.8)
 6th speed 1/min: 1800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.0...34.0
 1000S.: (30.5...35.5)
 7th speed 1/min: 1200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.0...34.0
 1000S.: (30.0...35.0)
 8th speed 1/min: 900
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.4...32.4
 1000S.: (28.4...33.4)
 9th speed 1/min: 600
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.0...33.0
 1000S.: (29.0...34.0)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 2300
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 12

KSB/AFB
 valve Volt: 12

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 350
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.5...11.5
 1000S.: (5.5...13.5)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.0...11.0
 1000S.: (5.0...13.0)

Residual:

1. Rotacao 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (1.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : -6.5...-8.5 "
 difference 1000S.: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Inj.-qty. cm³/: 2.0...8.0 " Z
 difference 1000S.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -0.4...-1.4 '
difference mm: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 310
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

2nd speed 1/min: 210
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...65.00
1000S.: -

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...52.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.1...1.3
SVS max. mm: 3.1
Ya mm: 30.8...34.8
Yb mm: 68.7...79.0

Remarks:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 14.06.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2150R281-1
Type number : 0 460 494 276
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD11ATE-Y BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.80...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 12.0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.50...3.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 49.00...55.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...80.00
mind 1000S.: 70.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.60...7.20
mm: (6.20...7.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.80...3.00
mm: (2.20...3.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.30...1.90
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.10...7.70

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 2000
Charge press. hPa: -
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 7.1
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 56.00...57.00
(53.50...59.50)

2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 5.00...11.00
(4.00...12.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 33.50...40.50
(33.00...41.00)

5th speed 1/min: 2250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 49.00...55.00
(48.00...56.00)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 56.00...59.00
(55.20...59.80)

10th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 60.50...63.50
(59.50...64.50)

11th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 59.0...62.0
(58.0...63.0)

12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 61.0...62.0
(59.2...63.8)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 42.00...43.00
1000S.: (40.20...44.80)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (10.00...16.00)

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...11.00
1000S.: (5.00...11.00)

High Idle:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (9.00...15.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (0.50...5.50)

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'echappement-ARF)

M18

Spacing mm: 12.0

1st speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 3.TL
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.50...25.50
1000S.: (22.00...28.00)

2nd speed 1/min: 500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 4.TL
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.5...21.5
1000S.: -

Automatic starting fuel delivery:

2nd speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...44.00
1000S.: (36.50...44.50)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...78.00
1000S.: (74.50...79.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...80.00
1000S.: (68.00...82.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.9...1.3
LDA stroke mm: 7.1
Ya mm: 34.3...38.3
Yb mm: 67.1...81.7

Remarks:

⋮
⋮
Add 12 mm spacer at 3rd

part-load-quantity stop.

Add 12 mm spacer at 4th
part-load-quantity stop.

Pump with slave plunger

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.08.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 074 883
 Injection pump
 Pump designation : PES4M55C320RS185
 EP type number : 0 410 064 006
 Governor
 Governor design. : RSF375/1900M78
 Governor no. : 0 420 021 274

Customer-spec. information
 Customer : MB-PKW

Engine : OM601 D23

1st version kW : 72.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 1 688 901 111

Opening
 pressure, bar : 147...150

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 20.00...22.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.75...13.85

Del.quantity cm³/ : 5.9...6.0

100 s : (5.8...6.1)

Spread cm³ : 0.3

100 s : (0.35)

2nd speed rpm : 375.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.6...0.7

100 s : (0.5...1.0)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1850

Del.quantity : 58.8...60.2

1000 : (57.7...61.3)

Spread cm³ : 3.00

1000 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.10...8.50

Speed rpm : 2200

4th rack travel in: 2600

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER

POSITION

Speed rpm : 900

Rack travel in mm : 1,9...2.0

LOW IDLE 1

Control lever

position degrees: 6...10

Setting point w/out bumper spring



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.08.94
 Replaces : 11.01.93
 Test oil : ISO-4113
 Combination no. : 0 400 074 886
 Injection pump
 Pump designation : PES4M55C320RS167
 EP type number : 0 410 054 960
 Governor
 Governor design. : RSF375/2000M55-7
 Governor no. : 0 420 021 268

Customer-spec. information
 Customer : MB-PKW

Engine : OM601

1st version kw : 59.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 1 688 901 111

Opening
 pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 20.00...22.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 3.8...3.9

100 s : (3.7...4.0)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 5.1...5.3

Del. quantity cm³/ : 0.6...0.7

100 s : (0.5...1.0)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 38.0...39.0

1000 : (37.0...40.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.65...9.15

Speed rpm : 2200

4th rack travel in: 2550

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Speed rpm : 375

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.03.94
 Replaces : 13.10.92
 Test oil : ISO-4113

Combination no. : 0 400 074 889

Injection pump
 Pump designation : PES4M55C32ORS172
 EP type number : 0 410 054 958
 Governor
 Governor design. : RSF375/2000M75-2
 Governor no. : 0 420 021 166

Customer-spec. information
 Customer : MB-PKW

Engine : OM601

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 1 688 901 111

Opening
 pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter
 x wall thickness
 x length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80
 : (1.65...1.85)
 Rack travel in mm : 20.00...22.00
 Firing order : 1- 3- 4- 2

M25

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 3.3...3.4

100 s: (3.2...3.5)

Spread cm³ : 0.15

100 s: (0.25)

2nd speed rpm : 375.0
 Rack travel in mm : 6.4...6.6
 Del. quantity cm³/ : 0.6...0.7
 100 s: (0.5...1.0)
 Spread cm³ : 0.1
 100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 33.0...34.0
 1000 : (32.0...35.0)
 Spread cm³ : 1.50
 1000 : (2.50)

RATED SPEED

1st version
 Control lever
 position degrees: 50...0
 3rd rack travel in: 8.20...8.60
 Speed rpm : 2500
 4th rack travel in: 2950
 Speed rpm : 0.00...1.00

**SET IDLE CONTROL LEVER
 POSITION**

Speed rpm : 900
 Rack travel in mm : 1,4...1,5

LOW IDLE 1

Control lever
 position degrees: 12...16
 Setting point w/out bumper spring
 Speed rpm : 375

-Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.08.94
 Replaces : 22.03.91
 Test oil : ISO-4113
 Combination no. : 0 400 074 896
 Injection pump
 Pump designation : PES4M55C32ORS104-1
 EP type number : 0 410 054 963
 Governor
 Governor design. : RSF375/2200M21
 Governor no. : 0 420 021 148

Customer-spec. information
 Customer : MB-NFZ

Engine : OM616 2.4L ADA
 1st version kW : 55.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 012

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 1 688 901 111

Opening
 pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80
 : (1.65...1.85)

Rack travel in mm : 20.00...0.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 3.7...3.8

100 s : (3.6...3.9)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 6.1...6.3

Del.quantity cm³/ : 0.7...0.8

100 s : (0.65...1.0)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del.quantity : 37.0...38.0

1000 : (36.0...39.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever
 position degrees: 50...0

3rd rack travel in: 8.20...8.60

Speed rpm : 2350

4th rack travel in: 2950

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 8...12

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6.1

Testing:

Speed rpm : 250

Minimum rack travel: 10.00

Speed rpm : 375

Rack travel in mm : 6.10...6.30

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : 22.08.94
 Edition : 03.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 074 897
 Injection pump
 Pump designation : PES4M55C32ORS172
 EP type number : 0 410 054 958
 Governor
 Governor design. : RSF360/230UM60-25
 Governor no. : 0 420 021 132

Customer-spec. information
 Customer : MB-PKW

Engine : OM601-Abgl. MJ90

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80
 : (1.65...1.85)
 Rack travel in mm : 20.00...22.00
 Firing order : 1- 3- 4- 2

NO2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 335.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm³ : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever
 position degrees: 50...0

3rd rack travel in: 8.20...8.60

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER
 POSITION

Speed rpm : 1000

Rack travel in mm : 1.40...1.50

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

cylinder no. 1.

Difference in start of delivery between
max. and min. value = max. 1° angular
displacement of cam

CHECKING THE IDLE-SPEED AUXILIARY
SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5°,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 335$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Sliding sleeve pre-travel = 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 a10
 Edition : 4.8.94
 Replaces : 24.07.90
 Test oil : ISO-4113

Combination no. : 0 400 874 238 K

Injection pump
 Pump designation : PES4A95D410RS2685
 EP type number : 0 410 894 996
 Governor
 Governor design. :
 RSV400...1000A1C2187

Governer no. : 0 420 232 387

Customer-spec. information
 Customer : LIEBHERR

Engine : D904 TB

1st version kW : 74.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance ± ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 1.0...1.6

100 s : (0.7...1.8)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 91...99

Testing:

1st rack travel in: 9.20
Speed rpm : 1020...1040
2nd rack travel in: 4.00
Speed rpm : 1030...1060
3rd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1220
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 400
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.50...10.60
3rd speed rpm : 720
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 82.5...85.5
1000 s: (80.0...88.0)
Speed rpm : 700
Del.quantity cm³/ : 91.0...94.0
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1020...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 10.0...16.0
1000 s: (7.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 d 1
Edition : 8.7.94
Replaces : 16.02.94
Test oil : ISO-4113

Combination no. : 0 403 456 116

Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205
Governor
Governor design. : RQ250/1200MW84-8
Governor no. : 0 420 082 063

Customer-spec. information
Customer : MAN

Engine : D 0826 LF 04

1st version kW : 199.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x wall thickness
x length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
: (3.3.45...3.65)
Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2-

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 13.60...13.70
Del. quantity cm³/ : 16.7...16.9
100 s : (16.4...17.2)
Spread cm³ : 0.4
100 s : (0.7)

2nd speed rpm : 250.0
Rack travel in mm : 5.5...5.7
Del. quantity cm³/ : 2.1...2.5
100 s : (1.85...2.75)
Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
travel mm : 9.3...9.7
2nd speed rpm : 1255
travel mm : 6.5...6.7
3rd speed rpm : 360
travel mm : 3.9...4.5
4th speed rpm : 250
travel mm : 1.6...2.0

GUIDE SLEEVE POSITION

Control-lever position
Degree: 108...110
Speed rpm : 600
Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1200
Del. quantity : 167.5...169.5
1000 : (164.5...172.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.6
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 150
Minimum rack travel: 7.5
Speed rpm : 250
Rack travel in mm : 5.5...5.7

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.6...13.7

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.5...9.6
2nd pressure hPa : 200
Rack travel in m: 10.0...10.1
3rd pressure hPa : 700
Rack travel in m: 12.3...12.6

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 167.5...169.5
1000 s: (164.5...172.5)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm3/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm3/ : 163.0...167.0
1000 s: (160.0...170.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.6
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7137

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a
Edition : 05.07.94
Replaces : 27.09.93
Test oil : ISO-4113

Combination no. : 9 400 083 449

Injection pump
Pump designation :
PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. :
RSV400...1100A2C2209

Governer no. : 9 420 083 201

Customer-spec. information
Customer : CUMMINS

Engine : 6 CT 8.3 L

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

N09

Firing order : 1- 5- 3- 6- 2-

Phasing :
0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.30...10.40

Del. quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.8)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del. quantity cm3/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.5

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm3 : 3.50

1000 : (8.00)

RATED SPEED

1st version

Control lever
position degrees: 85...93

Testing:

1st rack travel in: 9.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 10.30...10.50
5th speed rpm : 400
Rack travel in m: 10.70...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 75.0...79.0
1000 s: (73.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 134.0...150.0
1000 s: (131.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 5.50
1000 s: (9.00)

Remarks:

:

Start-of-delivery blocking 11° after
start of delivery of cylinder no. 1.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column:

Test sheet : VWV
Edition : 17.08.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/10F2250L614
Type number : 0 460 406 078
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : STEYER TD/LLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 111

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Charge press. hPa: 750
Setting value mm: 1.10...1.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

N11

Speed 1/min: 1600
Charge press hPa: 750
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1600
Charge press. hPa: 750
Del. quantity cm³/
1000S.: 39.50...40.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 29.0...30.0

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Charge press hPa: -
Del. quantity cm³/
1000S.: 9.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 750
Del. quantity cm³/
1000S.: 11.00...15.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 45.00...75.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250

Charge press hPa: 750
 TD travel mm: 0.30...1.10
 mm: (0.00...1.40)
 electromagnet Volt: 12
 2nd speed 1/min: 1600
 Charge press hPa: 750
 TD travel mm: 1.10...1.50
 mm: (0.60...2.00)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2150
 Charge press hPa: 750
 TD travel mm: 2.80...3.60
 mm: (2.50...3.90)
 Shutoff
 electromagnet Volt: 12

 Supply-pump pressure characteristic:

 1st speed 1/min: 1250
 Charge press. hPa: 750
 Supply-pump pressure bar: 5.20...5.80
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1600
 Charge press. hPa: 750
 Supply-pump pressure bar: 6.10...6.70
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2150
 Charge press. hPa: 750
 Supply-pump pressure bar: 7.50...8.10
 Shutoff
 electromagnet Volt: 12

 Overflow quantity at overflow valve:

 1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 2150
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)

 Delivery-quant. and breakaway char.:

 1st speed 1/min: 800
 Charge-air pressure-setting point hPa: 300

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 34.0...35.0
 (31.5...37.5)
 2nd speed 1/min: 2650
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 0.00...3.00
 -
 3rd speed 1/min: 2500
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 11.0...15.0
 (9.0...17.0)
 4th speed 1/min: 2400
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 27.00...37.0
 (26.0...38.0)
 5th speed 1/min: 2150
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 40.00...42.00
 (38.80...43.20)
 6th speed 1/min: 1600
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 39.50...40.50
 (37.80...42.20)
 7th speed 1/min: 800
 Charge press. hPa: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 34.00...35.00
 (31.50...37.50)
 8th speed 1/min: 500
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 36.50...39.50
 (35.00...41.00)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 29.00...30.00
 (26.50...32.50)

 Mech. shutoff:

 Electr. shutoff:

 1st speed 1/min: 375
 Charge press. hPa: -

Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Automatic starting fuel delivery:

1st speed 1/min: 400

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

2nd speed 1/min: 260

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: -

3rd speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 6.2...6.6
MS	mm: 1.6...2.0
Ya	mm: 8.5...10.5
Yb	mm: 69.7...88.3

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 19.08.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/10F2150L470-2
Type number : 0 460 406 079
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.20...5.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 41.5...42.5

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 24.5...25.5

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 7.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 750
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference 1000S.: -1.0...-5.0 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: -0.6...-0.8 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 750
TD travel mm: 0.60...1.40
mm: (0.30...1.70)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1600
Charge press hPa: 750
TD travel mm: 4.00...4.80
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750
Supply-pump
pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.20...5.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 34.0...35.0
1000S.: (31.5...37.5)

2nd speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 0.0...6.0
1000S.: -

3rd speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 10.00...14.00
1000S.: (8.00...16.00)

4th speed 1/min: 2175
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 19.00...29.00
1000S.: (18.00...30.00)

5th speed 1/min: 1750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 36.60...38.60
1000S.: (35.40...39.80)

6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 41.50...42.50
1000S.: (39.80...44.20)

7th speed 1/min: 600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/ : 37.70...40.70
1000S.: (36.20...42.20)

8th speed 1/min: 600
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.50...25.50
1000S.: (22.00...28.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...4.0
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : -0.5...-1.5 "
difference 1000S.: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: 0.0...3.0 * Z
difference 1000S.: -

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -1.1...-1.5 *
difference mm: -

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -

Supply pump-
pressure : -0.1...-0.3 "
difference bar: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : -0.5...-0.9 "
difference bar: -

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 520
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...35.00
1000S.: -

2nd speed 1/min: 320
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 6.2...6.6
MS mm: 0.9...1.3
LDA stroke mm: 5.9
Ya mm: 31.5...33.5
Yb mm: 50.3...62.6

Ya = Distance between VE flange and
speed-control lever in idle
position :
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control

Lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 17.08.94
replaces : -
Calibrating oil : ISG-4113
Injection pump : VE6/10F2150L398-1
Type number : 0 460 406 080
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.40...4.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.00...6.60

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 29.5...30.5

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 7.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2325
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -8.00...-12.0 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1500
TD-travel
difference mm: -0.6...-0.8 #

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 TD travel mm: 1.80...2.60
 mm: (1.50...2.90)
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 TD travel mm: 4.40...4.80
 mm: (3.90...5.30)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1700
 TD travel mm: 5.10...5.90
 mm: (4.80...6.20)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump pressure bar: 3.80...4.40
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply-pump pressure bar: 6.00...6.60
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2150
 Supply-pump pressure bar: 7.90...8.50
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm3/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 2150
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm3/10s: 55.60...139.00
 (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 0.00...3.00
 -
 2nd speed 1/min: 2275
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 14.50...24.50
 (13.50...25.50)
 3rd speed 1/min: 2150

Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 21.50...23.50
 (20.30...24.70)
 4th speed 1/min: 1850
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 23.20...25.80
 (21.50...27.50)
 5th speed 1/min: 1250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 29.50...30.50
 (27.80...32.20)
 6th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 26.00...29.00
 (24.50...30.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Charge press. hPa: -
 Del. quantity cm3/ 1000s.: 0.00...3.00
 -

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 7.00...9.00
 (4.00...12.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/ 1000s.: 0.0...3.0
 -

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm3/ difference 1000s.: 0.0...3.0 * Z
 -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel difference mm: -0.8...-1,8 *
 -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-

pressure : -0.3...-1.1 *

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 15.00...35.00

1000S.: -

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 35.00...75.00

1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 35.00...65.00

1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: -

MS mm: -

Ya mm: 31.5...33.5

Yb mm: 51.2...62.4

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 19.08.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1400R39-1
Type number : 0 460 424 108
Customer Part-No. :

Customer-specific information
Customer : NISSAN

Engine : B 4.40 LKW "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00
Electronically : -

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 1.30...1.50
Shutoff
electromagnet Volt: 24

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Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 6.90...7.50
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 69.50...70.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: -

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: -

Full-load speed regulation

Speed 1/min: 1575
Del. quantity cm3/
1000S.: 52.00...56.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 95.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 1.30...1.50
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 0.40...1.00
mm: (0.00...1.50)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1300

TD travel mm: 2.60...3.20
mm: (2.10...3.70)

Shutoff
electromagnet Volt: 24

5th speed 1/min: 1400

TD travel mm: 3.10...3.70
mm: (2.60...4.20)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 4.50...5.10

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1100

Supply-pump pressure bar: 6.90...7.50

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1400

Supply-pump pressure bar: 8.10...8.70

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 41.70...86.10
(26.70...98.10)

2nd speed 1/min: 1400

Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1700

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: -

2nd speed 1/min: 1525

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 60.0...80.0
1000S.: -

3rd speed 1/min: 1575

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 52.0...56.0
1000S.: (48.0...60.0)

4th speed 1/min: 1400

Charge press. hPa: 1200

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.5...78.5
1000S.: (72.0...80.0)

5th speed 1/min: 1000

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.0...78.0
1000S.: (71.5...79.5)

5th speed 1/min: 840

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.5...74.5
1000S.: (70.5...77.5)

7th speed 1/min: 500

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 69.5...70.5
1000S.: (66.5...73.5)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1400

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 13.00...17.00
1000S.: (9.00...21.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 430

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Timing valve Volt: 24

Del. quantity cm³/: 50.00...90.00
1000S.: -

2nd speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 95.00...155.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 95.00...155.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 0.9...1.3
Ya	mm: 37.2...39.2
Yb	mm: 52.7...60.7

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 19.08.94
replaces : 11.06.92
Calibrating oil : ISO-4113
Injection pump : VE6/12F1300R240
Type number : 0 460 426 084
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T6.60 TRUCK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.25
(from BDC): +/-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 0.60...1.00

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 98.50...99.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 86.50...87.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 16.50...20.50

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/ -
mind 1000S.: 115.0

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.6...1.3
mm: (0.1...1.5)
electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1300
Charge press hPa: 1000
TD travel mm: 2.00...2.80
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.90...4.50
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 7.30...7.90
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700

Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6.3

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 94.00...95.00
(91.00...98.00)

2nd speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)

3rd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 95.0...98.0
(93.0...100.0)

5th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 98.50...99.50
(96.00...102.0)

6th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 86.50...87.50
(84.00...90.00)

Mech. shutoff:
Mech. Abst.:

1st speed 1/min: 1300
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 16.50...20.50
(13.50...23.50)

Dispersion cm³/1000S.: 5.0
(5.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 2.50...12.50
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: ...95.0
2nd speed 1/min: 230
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: ...85.0
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: ...115

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: KOT
MS1 mm: 1.0...1.3
LDA stroke mm: 3
Ya mm: 37.2...39.2
Yb mm: 50.4...58.6

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end